



आरोग्यम् मरुवसम्पदा

# LOGISTICS AND SUPPLY MANAGEMENT

For Health And Family Planning  
Programmes

**-A Report On Inter - Country Course**

राष्ट्रीय स्वास्थ्य एवं परिवार कल्याण संस्थान, नई दिल्ली  
NATIONAL INSTITUTE OF HEALTH AND FAMILY WELFARE,  
NEW DELHI



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**LOGISTICS AND SUPPLY  
MANAGEMENT FOR HEALTH  
AND FAMILY PLANNING  
PROGRAMMES**

*—A Report On Inter-Country Course*





# LOGISTICS AND SUPPLY MANAGEMENT

FOR HEALTH AND FAMILY PLANNING PROGRAMMES

—A REPORT ON INTER-COUNTRY COURSE

(FEBRUARY 13-25, 1984)

*Conducted by*

NATIONAL INSTITUTE OF HEALTH AND FAMILY WELFARE, NEW DELHI

*In cooperation with*

THE CENTRES FOR DISEASE CONTROL, ATLANTA, U.S.A.

*and*

REGIONAL TRAINING SERVICE AGENCY (ASIA)

UNIVERSITY OF HAWAII, U.S.A.



आरोग्यम् मृतमश्नुते

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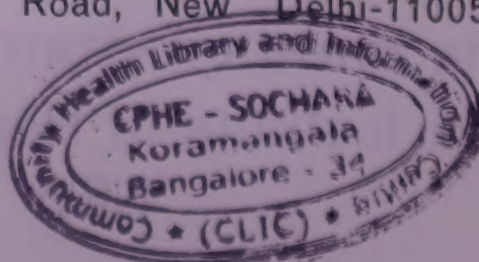




1984, by the NIHFW, New Delhi

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## FOREWORD

Lack of proper attention to the logistics and supply management component in health and family planning programmes in India and other developing countries of this region has so far been a major bottleneck in programme operations. Opportunities for increasing effectiveness of health care delivery through improved drug and contraceptive supply management are immense. Availability of drugs and contraceptives in time not only demonstrates their striking effectiveness against common diseases and unwanted pregnancies but also establishes credibility and promotes acceptance among the rural masses of various health and family planning programmes. Existing training opportunities for improving manpower performance are limited specially in this region. In an attempt to fill the hiatus National Institute of Health and Family Welfare in cooperation with the Centres for Disease Control, Atlanta, USA, and the Regional Training Service Agency (Asia) of the University of Hawaii conducted an Inter-country Course on Logistics and Supply Management for Bangladesh, Nepal and India from February 13 to 25, 1984.

In the following pages NIHFW presents a complete report on this course including an Evaluation Report prepared by the participants and their recommendations.

I would like to express my appreciation to the US Consultants Mr. Jack Graves, Mr. Anthony Hudgins and Mr. Richard Owens for their invaluable contribution to the Regional Training Service Agency (Asia), University of Hawaii, for their financial support, and to USAID, New Delhi for their help and cooperation in conducting this programme. I shall be failing in my duty if I do not thank the guest speakers who



delivered lectures and prepared background papers on various aspects of logistics and supply management. Finally, I would also like to thank Dr. R. S. Gupta and his colleagues who put in hard work for the success of this course.

I hope these proceedings would be of interest to health and family planning administrators who are concerned with logistics and supply management in the countries of this region.

May 10, 1984  
New Delhi

**Somnath Roy**  
Director



## 1. INTRODUCTION

The original meaning of the word logistics had distinct military connotations, defined by Webster as 'The branch of military science concerned with the procurement, transportation, maintenance, and supply of troops, equipment, and facilities' used for bellicose purposes. Later, as the systems approach came into vogue, the words were combined and the term 'logistics system' evolved with a more general meaning. Analogies became popular to describe the term's various interpretations. The human body's logistics system is its blood supply which transports oxygen and essential nutrients to peripheral body tissues on a regular basis. If this logistics system malfunctions, the organism suffers; if it is interrupted, the organism will die.

Similarly, a health and family welfare programme has its logistics system which provides essential drug and contraceptive supplies and services even to remote peripheral service points on a regular basis. If this logistics supply system malfunctions, the whole programme suffers; if it is interrupted, the whole programme can collapse. Programme managers have been quick to identify logistics as a crucial component of their health and family planning programmes. Assuring peripheral service outlets with an unbroken flow of supplies has posed a continuing problem to programme managers. Persistent shortage or deterioration of commodities due to storage beyond their shelf-lives has been shown statistically to have considerable effect on acceptance of preventive health services and continuation of family planning practices.

As the health and family welfare programme has expanded and become more sophisticated, its logistics systems have had to respond accordingly. Initially, viewed as simply drugs and contraceptives distribution and resupply networks, the logistics systems must now procure, stock, and resupply medical equipment, materials and supplies, in addition to contraceptives. The increased complexity and responsibility has strained, and in

some instances surpassed, the capacity of already overworked staff, resulting in insufficient activity in a crucial service area.

## **2. OBJECTIVES**

This course on Logistics and Supply Management aimed at providing the participants with a better understanding of the relationship of logistics to the success of the overall health and family welfare programmes so that they could upgrade in-country expertise in forecasting drugs, contraceptives and related supply needs and improve internal mechanisms for effective distribution of these services to consumers. On completion of this course it was expected that the participants would be able to :

1. understand and apply the basic principles of logistics management related to health and family welfare programmes;
2. comprehend the operation and inter-relationships of various drugs, contraceptives and other related supply systems;
3. evaluate various logistics and supply systems, and recommend basic techniques to improve the systems performance;
4. identify areas where domestic or other technical assistance is necessary to improve logistics systems; and
5. transfer knowledge and expertise obtained in the course to local situations through organisation of logistics and supply management courses at various levels.

## **3. SCOPE AND COVERAGE**

This Inter-country course primarily focussed its attention on the logistics systems within India with limited participation from Nepal and Bangladesh. The course had jointly been planned by NIHF, the Centre for Disease Control, Atlanta, USA, the Regional Training Service Agency (Asia), University of Hawaii, with support from USAID, Delhi.

## **4. COURSE CONTENTS**

This course covered such topics as selection, procurement, distribution and use of drugs and family planning supplies system; reviewed the procurement process, inventory control,



stores/warehouse layouts and operations; and analysed organisational and functional components of the logistics system, etc. Simple management techniques like ABC/VED analysis were also kept alongwith exercises, data for which had been collected from Delhi hospitals.

## **5. METHODOLOGY**

The course had been designed with a view of enabling the participants to understand the basic principles and acquire skills. The course used lecture-discussion as a method of training but provided sufficient opportunity for the participants' involvement through group work and panel discussions.

To provide an insight into the strength and weaknesses of some existing stores and supply system, a few field visits had been included in the programme. After the visits, detailed discussions were held to identify the lacunae and suggest ways and means for improving the systems. Sufficient use of A.V. aids was also made to clarify the concepts and flow of the logistics and supplies, etc. Group exercises and case studies were built in the course to acquaint participants with the problems being faced in the management of logistics and supplies.

## **6. PARTICIPANTS**

The following criteria were kept in view in selecting participants for the course :

- Officers dealing with stores/logistics in Central Government establishments (one attended);
- Officers who are in-charge of medical stores depots (three attended);
- Officers dealing with policy decisions regarding logistics and supplies at the regional and State levels (eleven attended);
- Officers from the district level who are in-charge of district supplies (nine attended); and
- Officers who are in-charge of primary health centres

and require these supplies in their day to day use (two attended).

Besides the twenty-six Indian participants selected on the above criteria, three participants came from Nepal and one from Bangladesh. In addition, three members of the Faculty of National Institute of Health and Family Welfare attended the course as observers. Thus, the entire group consisted of thirty-three participants.

## 7. INAUGURAL SESSION

**Director's  
welcome address**

Prof. Somnath Roy, Director, NIHFW, welcomed the Hon'ble Union Minister of State for Health and Family Welfare, Mrs. Mohsina Kidwai, Consultants from the Centre for Disease Control, Atlanta, John Snow International, Nepal, the Regional Training Services Agency (Asia), University of Hawaii and the participants to the course from Bangladesh, Nepal and India. Prof. Roy explained the genesis of course and shared some of his thoughts and concern in the field of logistics and supply management. (Text of address at Appendix 4).

**Remarks by the  
Course-Director  
and represen-  
tatives of  
collaborating  
institutions**

The Course Director Dr. R.S. Gupta outlined the objectives and said that the course aimed to provide the participants with a better understanding of the relationship of logistics to the success of the overall health and family welfare programmes. He also explained that the course was designed with a view to enabling the participants to understand the basic principles and to acquire skills. Dr. Gupta said that in the course the method of lecture-discussion would be used mainly but sufficient opportunity will also be provided for the participants' involvement through group work, panel discussions, case studies and field visits.

Dr. Richard Brown of USAID, New Delhi, highlighted the importance of logistics supply system in the field of health and family planning. He said that while the private sector gave high priority to the logistics management, we tended to be little the importance of it in the field of health and family welfare. He pointed out that the problems in this field were to a great





*Registration of Participants*



*The Course was inaugurated by Smt. Mohsina Kidwai, Minister of State for Health and Family Welfare*



*Participants of the Course at the inaugural Session*





extent of similar nature in the three countries represented at the workshop—India, Bangladesh and Nepal. Dr. Brown expressed his pleasure over the close association between the Government of India, National Institute of Health and Family Welfare and the US Agency for International Development, CDC, Atlanta and RTSA (Asia). Dr. Brown hoped this workshop would lead to other workshops and training activities at the regional and State levels which could build on its outcome. (Text of speech at Appendix 5).

Mr. Michael Dennis, RTSA (A) said that it was an honour and privilege to collaborate with the highly respected NIHFW in conducting the course. He hoped that as a result of their efforts there would be positive changes in the movement of family planning supplies and services needed. He read out message from Dean, Jerold M. Michael and Director, Harold Hunter. (Text of messages at Appendix 6).

Mr. Jack Graves from the Centre for Disease Control, Atlanta, USA and a consultant to the course expressed his happiness over this collaborative effort involving RTSA (A), NIHFW and CDC, Atlanta, in organising this course. He hoped Logistics and Supply Management would get the necessary fillip and importance in India, Nepal and Bangladesh from this workshop.

Honourable Minister, Mohsina Kidwai complimented NIHFW on organising the course in a highly specialised area for Bangladesh, Nepal and India with the help of consultants from CDC, Atlanta, Georgia. She said that the countries of this region had made considerable progress in practically all fields, including health. She, however, thought demographic and health profile of this region was still a cause for serious concern. Shortcomings in the regular delivery of medical and family planning services to outlying health units were a major bottleneck in providing adequate health care for the rural population. She stressed the need for an effective functioning of distribution system for medical commodities to strengthen primary health care in rural areas. She pointed out that many

**Inaugural address  
of the Union  
Minister of  
State for Health  
and Family  
Welfare, Mrs.  
Mohsina Kidwai**

diseases could be prevented, cured or controlled by the appropriate use of pharmaceutical products.

Mrs. Kidwai said that a government's limited allocation for drug procurement might account for upto 40 per cent of its overall health care budget, making efficient management of drug expenditure a vital consideration for health officials. High costs and frequent shortages in many countries remained a chronic problem for drug supply. Various management techniques had been able to make major improvements in the logistics system with supply and distribution components. There was urgent need for the use of these management techniques for a quicker pay-off in improved services at reduced cost.

Mrs. Kidwai hoped the course would enable the participants to develop a suitable system of logistics and supply management on modern scientific lines. (Text of address at Appendix 7).

## **8. WORK SESSIONS**

### **Logistics Management—An Overview**

**Speaker : Prof. T.R. Anand**

**Similarity  
between human  
body's logistics  
system and  
health & family  
planning logistics  
system**

After the inaugural function, Prof. T.R. Anand took the above session. He said that there was a similarity between the logistics system of the health and family welfare programme and that of the human body. The system in the programme provided essential drugs and contraceptives and other supplies to remote peripheral service points on a regular basis, whereas in the human body it was its blood supply which transported oxygen and essential nutrients to peripheral body tissues also on a regular basis. He pointed out that the systems approach had originated in the medical field, but unfortunately it had not adopted it. The human body consisted of different systems and each system had a number of components with specificity of functions and the components were inter-dependent. Logistics management was a multifaceted activity and it did not concern itself only with stocking and distribution of supplies.



Prof. T.R. Anand illustrated different components of logistics and supply management, their specific functions and inter-dependence. According to him the different components are :

#### Components of logistics system

(a) *Demand Estimation*—A realistic demand estimation forms the basis of all future activities in materials planning and management. Data regarding the past consumption trends are to be analysed, and the forces which govern the pattern of consumption need to be understood. The need for codification as well as classification, when dealing with a large number of materials, is to be stressed. The value analysis is another important activity in demand estimation. It is important to note that the demand estimation should be done at a higher level to minimize over estimation or under estimation.

(b) *Procurement*—Questions such as how much inventory level should be maintained, the quantity of materials to be ordered at a time, and what should be the frequency of orders, need clearcut policy decisions.

(c) *Inspection*—Creation of an organisation at every level of the system to ensure the quality of materials received is suggested.

(d) *Storage*—Materials storage is one of the important activities that needs a lot of attention. Medical supplies require controlled temperature and humidity, and protection from light. Questions like maximum and minimum levels of each item to be stocked, levels of reorder, buffer stock policies, analysis of the movement pattern of each item and minimising pilferage are to be considered.

(e) *Issue and Transportation*—Issue of materials and their transportation to various sectors of the health care delivery system is another important area which needs attention. Most of the breakdowns in the supply system occur because of weaknesses in this particular area.

(f) *Maintenance*—Preventive maintenance will go a long way in improving the useful life of various equipments. Break-downs can be minimised and losses thereof reduced considerably.

(g) *Repairs*—For want of repairs, a large variety of items lie idle and the programme objectives are defeated. It is important to keep an inventory of necessary spares.

(h) *Information and Control Mechanism*—The importance of having a very strong information and control mechanism to oversee the above activities is to be stressed. The right type of decisions cannot be made without proper information and in the absence of facilities for its proper analysis.

#### **Various costs**

Prof. Anand said that logistics and supply management aimed at reducing the cost of pharmaceuticals and contraceptives, and different types of costs such as purchase cost, carrying cost and costs of space, manpower, obsolescence, pilferage, etc. had to be taken into consideration. The carrying cost was generally invisible and constituted about 35-40 per cent of the purchase cost. The shortage cost was the cost of not having a material. He said that the management in private industry would work out the shortage cost of each item, whereas in the health sector, this had not been done.

In private industry, he said that the responsibility for looking after materials was with a person of the status of Deputy General Manager, whereas in the field of health this rested on a lower level storekeeper or clerk. There was a dictum in management that a decision was as good as the level at which it was made. In sum, every activity should be subjected to a cost reduction exercise so as to maximise the availability of supplies and simultaneously maximise the value of money.

#### **Drug And Contraceptive Logistics**

**Speaker : Mr Jack Graves**

#### **Goal of logistics**

The next speaker Mr. Jack Graves who dealt with this subject was of the view that logistics and supply management



was a highly neglected area in the field of health and family planning. The goal of supply and logistics system was to have the appropriate amount of resources at all locations and at all times.

Availability and effectiveness of drugs were key factors in generating and maintaining public interest and participation in health activities. Likewise, adequate and timely supply of contraceptives was essential for family planning programmes to have a noticeable impact on fertility and thereby to gain public acceptance.

**Timely  
availability  
of drugs and  
contraceptives**

Mr. Graves defined logistics as the science of procuring, maintaining and transporting supplies. The primary functions in the drug logistics cycle, he said, were :

**Logistics  
defined**

- Selection
- Procurement
- Distribution
- Use

**Logistics  
cycle**

Each of the functions was fraught with numerous pitfalls which arose because of poor management, unskilled staff, inadequate resources and difficulties with medical practitioners and patients.

**Pitfalls**

Mr. Graves explained with the help of slides the typical flow of drugs in a public supply system. In some systems drugs would be procured at the regional, district or even community level. Interaction between a public health programme and commercial suppliers might occur at the national level where only raw ingredients were purchased and the drugs were produced and distributed entirely by public Institutions or it might begin at any point down to the community level where drugs were purchased directly from commercial pharmacies or shops. The level at which supplies were procured was dependent to a large extent upon whether drug supply was a centralised or decentralised function.

**Public drug  
supply system**

## **Dimensions of drug and contraceptive supply**

Speaking about the dimensions of drugs and contraceptives supplies, he brought out a comparison of the characteristics of drugs and contraceptives. The drugs were high cost, short life, numerous and substitutable items, whereas the contraceptives were low cost, long life, few and not substitutable items.

Mr. Graves said that in most primary health care systems, the potential for improving the supply process was tremendous. This only reflected in part the magnitude of current inefficiencies and waste. He gave a typical example of a programme in which an annual expenditure of US \$ 1,000,000 of drug supply resulted in therapeutic benefit of only \$ 300,000 to the patient. High prices, poor quality, theft, improper storage, expiration of drugs, irrational prescribing and patient misuse resulted in losses totalling 70 per cent of the original expenditure. With better management it was possible to increase the therapeutic benefits to the patient upto \$ 700,000 from \$ 300,000. He concluded by saying that improved purchasing, quality assurance, security systems, better storage, careful inventory control and altered prescribing habits were capable of implementation in most systems.

### **Drug Supply System in India**

**Speaker : Dr. R.C. Sharma**

## **Background history of MSD**

The speaker traced the history of Drug Supply System in India and said till the Second World War, drug supplies were being managed by a central organisation under the administrative control of the Defence Department through its warehouses at Bombay, Madras, Calcutta and Lahore. It was responsible for the supply of medical and veterinary stores to various government and non-government departments, hospitals, dispensaries, etc. However, when the Defence Department made their own arrangements for the supply of medical stores to their units, the responsibility of supplies to civil hospitals, dispensaries was taken over by the Ministry of Health and Family Welfare (then known as Department of Health, Education and Land).



Because of the inadequate number of Medical Stores Depots (MSD) under its control, the Ministry established a new depot at Karnal (in lieu of the Depot at Lahore after the partition of the country). At present, there are six depots in the country located at Bombay, Calcutta, Madras, Hyderabad, Gauhati and Karnal. The seventh was to come up soon in Delhi to cater to the needs of CGHS and Delhi hospitals. According to Dr. Sharma, these depots were planned on logistics basis so as to cover the entire country.

**Number and location of MSDs**

The depots performed the tasks of procurement, stocking and supply of requirements of medical stores for the use of numerous hospitals, dispensaries, primary health centres, sub-centres, etc. This involved planning, provisioning, purchasing, stocking, accounting and distribution. Certain organisations such as the Defence Department, Railways, Employees State Insurance Corporation and some State Governments made their own arrangements for purchase and supply of medical stores. The Medical Stores Organisation was responsible for supply of stores for medical care and relief to provide curative, preventive and promotive services to the nation.

**Functions of MSD**

The Medical Stores Depots stocked 2,400 varieties of commonly used items like drugs, surgical instruments, dressings and laboratory equipments used in hospitals and dispensaries. The organisation catered to the needs of about 16,000 hospitals and dispensaries in 22 States and 9 Union Territories. A majority of these were located in rural and semi-urban areas.

**Items stocked and coverage**

Indentors of a depot were hospitals/dispensaries under the Central and State Government, zila parishads, panchayats, municipalities, statutory bodies and government undertakings. These indentors were assured of standard quality goods at economical prices from a single source. The advantage of bulk buying was passed on to them.

**Type of indentors**

The Medical Stores Organisation was also responsible for handling and distributing supplies meant for various national health programmes. Dr. Sharma pointed out that these programmes were not of a commercial nature as the costs of

**Supplies to various national programmes**

medicines and equipment stocked under these programmes were not met out of the funds of Medical Stores Depots. These depots merely stocked these items and acted as distributing agents for the programmes concerned.

**Assistance  
from inter-  
national  
agencies**

Assistance provided by international agencies like UNICEF, USAID, WHO and SIDA in the form of drugs and equipments were also handled by the depots. Handling included clearance, storage, accounting and despatch of huge quantities of drugs, vaccines, syrups, vitamins, insecticides, vehicles etc.

**Reserve of  
life saving  
drugs**

Dr. Sharma had also mentioned that the Medical Stores Depots maintained substantial reserves of life saving drugs for natural and national calamities such as floods, drought, cyclone, earthquake, that might occur in any part of this country as also of any other. There was no other Government agency to handle such responsibilities.

**Indenting  
procedures**

On the basis of the trend of expenditure of items, procurement in bulk was made through the Directorate General of Supplies and Disposals (DGS&D), a central purchase agency, which in most cases followed the limited tender/advertised tender system. Each depot was authorised to purchase items locally upto Rs. 25,000 at a time, and upto Rs. 1,00,000 with the approval of the Director-General of Health Services. The depots followed the 'limited tender' system in making such purchases. A list of approved registered suppliers was maintained at each depot. Dr. Sharma said that the Medical Stores Depots made their purchase through DGS&D if the estimated value of articles exceeded Rs. 1,00,000. However, in cases of natural calamities, the depots were authorised to purchase items upto Rs. 10 lakhs. All canalized drugs were obtained directly through the State Trading Corporation and the Indian Drugs and Pharmaceuticals Limited.

**Vocabulary  
Medical  
Stores**

The depots distributed copies of Vocabulary Medical Stores (VMS) to all the indentors. VMS was a list of items which were authorised for stocking in the depots and supplied



to the indentors. It gave details of the names of the items, specifications and accounting unit for the guidance of the indentors in preparing their indents. The VMS list had recently been updated to include all the latest medicines available in the country and at present it contained nearly 2,400 items. Normally, the depots were not expected to stock or supply items which were not included in VMS. For the convenience of the indentors, printed annual indent forms, as also supplementary indent forms were supplied to them.

The depots were run on no profit no loss basis. The indentors were charged the actual cost of procurement plus 10 per cent incidental (for testing, maintenance and establishment) charges. On supplies handled for the purpose of national programmes, as well as those received from international agencies, a uniform charge of 4 per cent was levied.

**Cost to  
indentors**

The present turnover of the depots was of the order of Rs. 18-20 crores a year, apart from the drugs handled for various national programmes and those received from international agencies, whose value was around Rs. 25-30 crores a year.

**Turnover  
of depots**

Dr. Sharma briefly spoke on the procedures of preparation of budget of the Medical Stores Organisation. He said that the initial work of compilation of budget proposals would start at the depot level. The budgets of individual depots were scrutinised and consolidated at the organisational headquarters and in the Ministry.

**Budget  
preparation**

Thereafter, the amount of the budget under various sub-heads was allocated to a depot according to its requirements.

Budgetary control over various depots was exercised in the Directorate by monthly expenditure statements, purchase liability statements, etc. A watch over the turnover of the depots was kept through monthly statements received from them.

**Budgetary  
control**

# **Contraceptive Supply System in India**

**Speaker : Mr. Vikramajit**

## **Rising population**

The speaker, Mr. Vikramajit, started the session pointing out that India was the first country in the world to launch a government sponsored Family Planning Programme in 1952 aimed at curbing the growth rate of population. He said that India's population had nearly doubled from 342 million in 1947 to 684 million in 1981. At present, it was about 700 million. There had been a sharp reduction in the death rate because of better and improved health facilities without comparable reduction in birth rate. This had resulted in marked increase in population, over 40 per cent of the population was below the age of 15 years. This large young population once it entered the reproductive age-group had potential for higher population growth. Poverty, illiteracy, poor transport and communication facilities had only added to the complexity of the problem.

## **Programme objectives**

Rapid rate of increase in population had nullified the gains made through developmental plans and if the present growth rate was not arrested, population was likely to cross 1,000 million by 2000 A. D. The Government, therefore, was committed to promote the small family norm through voluntary acceptance of family planning methods. There were about 121 million eligible couples and that our objective envisaged effective couple protection level of 60 per cent by 2000 A. D. as against a coverage of 25.9 per cent in 1983. The importance and priority was evidenced by its inclusion in the 20-Point Programme of the Prime Minister and the monthly review of its performance by her.

## **Delivery of services**

The programme was being implemented through the State Governments, voluntary agencies, and local bodies with full funding by the Union Government. The health and family planning infrastructure had been streamlined to make the delivery system more effective and wider in reach. The services were delivered



as a package of family planning, maternal and child health care and primary health care services.

About the dimensions of the supply system, Mr. Vikramajit said that India was a vast country with 700 million people spread over an area of 3.29 million kilometres. The country had 408 administrative districts and over 5,60,000 villages. The district was further divided into blocks, each having about 100 villages, a population between 80,000 and 1,00,000 and a Primary Health Centre (PHC). The PHCs numbering about 6,000 were centres for providing family planning, MCH and health facilities. Each Block (PHC) was further sub-divided into 8-10 sub-centres which were peripheral units each covering a population of about 10,000 through two workers—one male and one female. There were about 65,000 sub-centres. Large number of workers were manning this vast infrastructure and provided services to the people. To further strengthen and extend the outreach, a scheme of placing a Health Guide in each village had been started. These guides were trained to educate the community and deliver basic family planning and other services. About three lakh Health Guides were trained and were in position.

#### **Dimensions of supply logistics**

The speaker discussed the basis of scale of procurement and supply management of contraceptives. Firstly, the demographic goals decided for the National Family Welfare Programme were converted by the Ministry of Health and Family Welfare into specific annual targets for various family planning methods on the basis of use of different devices. While working out the annual target for each method, other relevant and important factors such as the number of eligible couples, past performance, method preference and acceptance trend were also taken into consideration. The determinant of supply needs was the annual target fixed for each method of family planning.

#### **Supply systems**

Mr. Vikramajit said that the Ministry of Health and Family Welfare had a specialised unit, the Marketing and Supply Division, under the charge of Adviser (Marketing). His role was

#### **Organisation**

to procure, arrange for storage in regional warehouses, prepare delivery schedules, organise stock deliveries and undertake monitoring of the entire supply system.

#### **Distribution of supplies**

The Government of India received the supplies from manufacturers (government, private and international sources) at various Medical Stores Depots. The State Governments arranged for procurement directly from the manufacturer/supplier. The State Governments in turn, after deciding methodwise targets for each district, arranged the required supplies to each District Family Planning Bureau from the State or regional godowns. The district bureau in turn supplied the required methodwise stocks to the Primary Health Centres which in turn arranged for the supplies to sub-centres and Health Guides. The family planning supplies thus reached the consumer.

#### **Social marketing programme**

The speaker briefly explained the social marketing programme under which Nirodh (the condom) was being sold. Under this scheme, the stocks were supplied by the Department to the participating private and public sector marketing companies who undertook distribution of Nirodh to the retail shops through their sales network. There were four lakh retail shops involved in the programme and 162 million pieces of condoms were sold during 1983-84.

#### **Oral pills distribution**

He also discussed the oral pills distribution programme which was introduced in July 1967 as a pilot project. In November 1974, it included all urban centres and selected PHCs. In August 1977, all PHCs with doctors were brought under its umbrella and in March 1977 distribution of oral pills was allowed by certain paramedicals.

#### **Major constraints**

In conclusion, Mr. Vikramajit mentioned some of the major constraints in operating an efficient supply system in India :

1. Limited number of warehousing facilities.
2. Long distances between storage points and users areas.





*Sessions  
in  
Progress*







- 3. Inadequate transportation facilities.
- 4. Lack of training for supply managers.

**Basic Principles—Introduction**

**Speaker : Mr. Jack Graves**

Mr. Jack Graves began by reminding the participants that no logistics system could simultaneously maximise service to consumers and minimise distribution cost. He said that maximum service implied such policies as large inventories, premium transportation and many warehouses—all of which raised distribution costs. Minimum distribution cost implied such policies as cheap transportation, low stocks and few warehouses. The logistics objective could be defined by introducing the notion of an efficient system, that is, the ratio of a system's output to its input. A programme bore certain costs (inputs) – principally transportation, inventory and warehousing—when providing a given level of service. A system was said to be efficient if no reorganisation of inputs could reduce the costs while maintaining an adequate level of service.

**Logistics objectives**

Mr. Graves said that a basic output of a logistics system was the level of service to outlets. The level of service depended on four components: availability of contraceptives, timely requisition, inventory maintenance and reliable delivery. In a family planning programme, the level of service to the outlets must be high. Because of the consequences of unwanted pregnancy, the programme could ill-afford to run out of contraceptives at any outlet. The programme must, therefore, ensure continuous availability of contraceptives at all levels.

**Level of service**

One of the jargon words in logistics was pipeline. Explaining its meaning he said that it was the quantity of commodities flowing, as water through a pipe from the source (manufacturer) to the consumer. The pipeline had two

**Pipeline concept explained**

components—the flow from the manufacturer to the port of entry called the external pipeline and from the port of entry to the consumer called the internal pipeline. The pipeline concept was useful since it ensured smooth flow with no overloads and no interruptions. He pointed out that a logistics system, like a water pipe, had its capacity.

#### **Basic components of logistics**

There were three basic components of logistics which must be known before an effective logistics system could be developed and they corresponded to the pipeline concept. First, the rate of distribution or the quantity of goods to be dispensed (*i.e.* distributed to consumers) must be known. This corresponded to the pressure. Secondly, what quantity could be maintained in storage and transit. Within the system, this corresponded to the size of the pipe. The third component was the time required between realisation of the need and delivery of the goods or lead time. This corresponded to the length of the pipe.

#### **Inventory management**

Inventory Management, Mr. Graves said was the heart of any logistics system. It was defined as the maintenance and storage of optimal levels of inventory at all programme levels to meet consumer demand for contraceptives. The Inventory Management systems tended to all into one of the two categories *i.e.* push or pull system :

#### **Push system**

- a) The push or allocation system in which supplies were allocated down the network to intermediate warehouses and eventually to the outlets.

#### **Pull system**

- b) The pull or requisition system in which demand at the outlets drew supplies down the network.

The essential difference between the two systems was in the location of decision-making for the flow of supplies. In the push system, this decision was taken at the higher level, whereas in the pull system at the lower level. Thus, in the push system the outlets were not responsible for ordering their own supplies; in a pull system they had this responsibility.



Discussing the advantages of the push system, Mr. Graves said that it: (a) required minimum training of personnel at the field level; (b) eliminated unrealistic orders from outlets; and (c) maintained adequate stocks in the outlets according to programme policy. He listed the following disadvantages in the push system: (a) timely reporting from the field was essential; (b) the need for timely data processing on several items of supply for outlets and other programme levels; and (c) lack of involvement of field staff in the logistics system, and the resulting loss of sensitivity to special or unusual field conditions.

#### **Advantages and disadvantages of push system**

In most cases, the advantages and disadvantages of a pull system were the opposites of those for the push system. One of these was that once a pull system was operating well, the need for reporting stock balances, items dispensed, could be minimised. However, when a pull system is implemented it required close supervision at field levels, especially when field personnel lacked training and/or experience in logistics management.

#### **Advantages and disadvantages of pull system**

The way the logistics system was managed must conform to the organisational structure of the family planning programme. Recommending a pull system where lower echelon personnel were not sufficiently trained to make decisions regarding control of supplies implied that these persons must be trained before the programme started, a time consuming task. Similarly, there was no value in trying to install a push system if the information processing capacity was not available at the central facility.

#### **Push and pull systems—basic imperatives**

A push system would be desirable for programme where conditions were uncertain and field personnel have had little or no experience in supply management. As the key personnel became more experienced and better trained it might be possible to implement a 'mixed system'. Giving an example of a 'mixed system' Mr. Graves said that it would be a pull system from the central warehouse to the intermediate warehouses and a push system from the intermediate warehouses to outlets. Another

#### **Mixed systems**

type of mixed system was where certain items were allocated and others were subject to requisition.

**Push, pull or mixed—primary factors**

To summarise, the speaker said that there were three primary factors to consider when deciding whether to use a push or a pull system or a combination of these.

- 1) The management skills of the individuals working at each level in the system.
- 2) The information available about actual usage at each level.
- 3) The number and quantity of different items (called line items) managed.

In general, programmes tended to start as the push system but were converted into the pull system when skills improved, the programmes established accepted routines and shortages of various items of supply were minimised.

In most supply systems, there were three basic types of orders. With the help of transparencies Mr. Graves explained the meaning of :

- (i) *Stock orders*—These were routine, pre-scheduled orders designed for relatively large quantities to be shipped by low cost transportation.
- (ii) *Fill-in orders*—This type of order was submitted when a person in-charge of supplies realised that the stock of one or more items would be depleted or would fall below the minimum desired level before a stock order was due to arrive. These orders required premium shipping methods.
- (iii) *Emergency orders*—These were placed when stocks were suddenly depleted or reached low levels so that fill-in orders would not arrive before the stocks ran out and when the items in question were vital to the



operation of the programme. An emergency order required premium communication such as a telegram or long distance telephone and premium transportation such as air freight.

Another way some programmes dealt with emergency situations was by borrowing supplies from a nearby unit. However, this practice should be discouraged as it almost always ran counter to established routines of the supply system.

The demand for contraceptives in most family planning programmes could easily be predicted accurately enough to minimise the need for fill-in and/or emergency orders. In almost all cases, these situations arose because of some type of special campaign being scheduled without considering the availability of supplies to support it or the increased demand that followed. Less frequently, the emergency situations were caused by natural disasters such as fires, or floods in which all the supplies were destroyed. Therefore, it was advisable for the family planning programme to establish procedures to be followed in case of need.

Mr. Graves also explained the meaning of the following terms :

*Safety stock*—The point below which the inventory level should never fall under normal conditions.

*Order size*—How many contraceptives should be ordered.

*Order interval*—How often contraceptives should be ordered. Order size and order interval are inter-related.

*Fixed order quantity*—A fixed quantity of contraceptives would be ordered or allocated whenever the inventory at a particular distribution point fell below a certain level.

## **Maximum minimum system**

He then discussed briefly the 'maximum minimum' system. Stock levels, he said that were usually based on the maintenance of inventory at all programme levels sufficient to ensure the continuous availability of contraceptives or drugs in case of delays in delivery and unexpected high demand. This was usually expressed in terms of quantity sufficient to provide a certain number of months' demand. Giving an example he said that a programme policy might be to maintain three months supply in all outlets. The result usually was confusing because the supply clerk was not sure whether this meant that he should have no more or less than this quantity on hand. This could be clarified by a range of maximum and minimum number of months' supplies to be maintained, such as not less than two and not more than four months. This was called 'maximum minimum' system. The choice of the maximum months supply and that the minimum months determined how frequently an order was placed and the average amount of stock on hand at a location. On the other hand, if the frequency of resupply was already firmly established then the choice of the maximum and minimum months supply would be based on this frequency.

## **Factors influencing high or low inventory levels**

The high or low inventory levels were greatly influenced by the following factors : reliability of the sources, high costs, high central inventory, short shelf-life, inadequate security, high field storage cost, scarcity mentality, long lead time, imprecise forecasting, large number of items, and distance of supply sources, etc.

## **Exercise**

This discussion was followed by an exercise on the 'maximum minimum' system. The exercise was aimed at giving the participants an insight into maintaining adequate inventory level of contraceptives or any pharmaceutical, keeping in mind the demands that might go up suddenly for one reason or the other.



## **Basic Principles—Logistics Systems Management Transportation, Recording, Reporting and Physical Inventories**

**Speaker : Mr. R.C. Monga**

Speaking on the topic Mr. R.C. Monga remarked that the expansion of services envisaged in the Sixth Five Year Plan of India, especially to rural areas, required a critical look at the total supply system in the country. Neither availability of men nor money in right amounts could bring about the desired results unless the materials required were available in time. Non-availability of materials contributed towards delays in implementing programmes and achieving targets.

**Need for critical  
look at the supply  
system**

Materials accounted for 30-40 per cent of the total budget of health care institutions and the estimated expenses on stores required for patient care in Primary Health Centres (PHCs), sub-centres, hospitals during the Sixth Plan period would be in the range of Rs. 500 crores. Besides, inventory holdings at different levels in the health care system could be estimated to be in the same range. Even a 10 per cent reduction in inventories, which was quite feasible with the application of modern management techniques, would result in the release of Rs. 50 crores. This amount could be used for better services and additional hospital beds. Mr. Monga, said that the problems of procuring, stocking and supply of materials in the Indian context was characterised by increasing inventories in a capital scarce country, decreasing material availability and increasing material cost.

**Materials  
potential area  
for reducing  
costs**

The design of any logistics system should balance the investment of inventors and availability so as to maximise the services to the patient at optimum cost. Material costs could be reduced through application of techniques like value analysis, etc. This aspect of reducing material cost had not received sufficient attention. It was possible to cut down inventories

**Design of a  
logistics system**

in stores, while improving the availability of materials through the application of selective control principles. Space utilisation could be improved greatly through proper layout of hospitals and other health care institutions; costs could be reduced by controlling breakages and pilferages through proper managerial action. Even packaging cost, at times more than nearly 25 per cent of the total cost of drugs, could be reduced. Much of the expansion of activities envisaged in the Sixth Plan under the policy objective 'Health for All' was likely to take place in rural and far flung areas.

#### **Transportation and distribution**

This would necessitate creation of a chain of stores throughout the country linked together by a transportation and distribution network so that supplies could be made to all the consumption points. To start with it was imperative to prepare a stores list, specifying items to be stocked at various levels, needs of the local population and vitality of the items. A transport system would have to be organised to ensure supply. The road and the railways were the most common means of transport, air being used in emergency.

The means of transport should be decided on the following considerations :

- 1) Cost of freight.
- 2) Availability, reliability and service level desired.
- 3) Maintenance and operation cost in case of vehicles.
- 4) Other costs, such as packing, insurance.

Finally, in the Indian context, it was essential to have an overall system's view of transportation and distribution, with inter-linkages between stock levels to be maintained, transportation schedules and routes, information and records system for ensuring supplies on time, linking all levels of health care rather than treating them separately.



## **Logistics Record System**

**Speakers : Dr. G.K. Biswas and Viswa Vibhuti**

The participants were told that Medical Stores Depots maintained stock of some 18,000 odd varieties of medical items of common use grouped under drugs, surgical instruments, dressings, and laboratory appliances, etc. The main activities of the Depots were procurement, stocking, distribution of drugs and medical stores to various government hospitals, dispensaries and primary health centres.

For the purpose of procurement, the Medical Stores Organisation followed the system of forward provisioning of stores, *i.e.* forecasting of demands for the coming financial year. This was done on the basis of records available with the depots and furnished to Medical Stores Organisation. These records furnished information like expenditure of an item during the preceding year, average cost of the items during the past three years, and stocks available on hand. These details were received at the headquarters for all individual items.

**Procurement of medical stores**

The forward provisioning of the items were done on the basis of various documents available with the depots related to the stocking of stores. Bin-card was one such record which projected the stock position of all items stocked in the depot. The Bin-card not only mentioned the average expenditure of the item during the past three years but also details of its demand over the period. This helped the stock holder to know whether an item had an increasing or decreasing demand. If the item had a shelf-life, that was also mentioned on the Bin-card. The minimum level of stock to be maintained was also noted on the Bin-card. A register on non-available items was also maintained.

**Stocking**

Distribution was the most important activity of the Medical Stores Organisation for which the earlier activities of procurement and stocking were done. For the purposes of distribution,

**Distribution**

the Medical Stores Depot kept a register of all indentors who had been drawing their requirements of drugs and medical stores from the depots. All Medical Stores Depots prepared a schedule which was communicated to the indentors. This schedule advised the indentors to place their indents on the Medical Stores Depots and within sixty days from the placement of indents the Depots were expected to make the supplies available. After the receipt of the indents the Medical Stores Depots posted the details of the indents in the Indent Register as well as in the Issue Voucher Register. The Indent Register contained such details as the date of receipt of the indents, from whom the indents had been received, the station, the month of compliance, MSD issue voucher No., the date of packing, time taken in compliance, the date of despatch and date of despatch of the priced voucher. These two registers were important in regard to the distribution part because the total progress of compliance of the indents from the date of receipt till the date of despatch to the indentors was jotted down on them.

### **Problems in the Operation of Logistics System**

A panel discussion was held on the above subject. Prof. T.R. Anand, Mr. Jack Graves, Dr. R.C. Sharma and Mr. Vikramajit were members of the panel. Participants from various States of India, Bangladesh and Nepal were invited to put forth important problems in relation to pharmaceutical and contraceptive supply. The panel discussion started with the problems encountered with the contraceptive supply system and the resultant effect on the family planning programmes. It was highlighted that availability of contraceptives and MCH supplies (iron, folic acid tablets and Vit. A) were crucial for changing the people's attitudes. The panelists noted that as a result of abnormal delay in the supplies from the Directorate-General of Supplies and Disposals (DGS & D), the Government of India had entered into the rate contract system for folic acid and



iron tablets. Vit. A was also going to be on rate contract very soon.

During discussion, the following major bottlenecks were indentified in the operation of the logistics and supply system :

- a) Transportation
- b) Long lead time
- c) Storage

On the drug supply front a panel member identified the following reasons for delay :

- a) Late coming of indents—The drug indents did not come sufficiently in time and it was suggested that the same should be submitted at least 3 to 4 months in advance.
- b) Sometimes drugs were indented which were not included in the Vocabulary of Medical Store (VMS).

One of the panelists suggested that certain amount of flexibility in operating any system had to be exercised. For example, why there cannot be any deviation in transporting government drug and contraceptive supplies from rail to any other mode of transport. As managers one had to streamline the logistics supply system by a flexible approach, taking firm decisions depending upon the exigencies of a situation (epidemics, natural calamities, etc.) adopting modern management techniques, such as introduction of computers and other innovations. The panel discussion emphasised that one should have an evaluative and critical mind in order to improve upon the existing system.

### **ABC/VED Analysis**

**Speaker : Prof. T.R. Anand**

Prof. T. R. Anand explained that ABC analysis was analysis of store items on cost criteria.

**ABC  
principle**

The ABC principle stated that—

10% of the materials would consume 70% of the resources.

20% of the materials would consume 20% of the resources.

70% of the materials would consume 10% of the resources.

The items which were small in number but consumed large amount of resources were known as 'A' items. Items which were intermediate in number and consumed intermediate amount of resources were known as 'B' items. 'C' items were very large in number but consumed insignificantly low amount of resources.

**Guidelines for  
inventory control**

In so far as inventory control was concerned, the following guidelines would help in keeping the system optimum :

**'A' Items** 1) Tight control, 2) rigid estimates of requirements, 3) strict and close watch, 4) safety stocks low, and 5) management of items should be done at top management level.

**'B' Items** 1) Moderate control, 2) purchase based on rigid requirements, 3) reasonably strict watch and control, 4) safety stocks moderate, and 5) management done at middle levels.

**'C' Items** 1) Ordinary control measures, 2) purchase based on usage estimates, 3) control exercised by store keeper, 4) safety stocks high, and 5) management done at lower levels.

**Rates of  
consumption—a  
tool for inventory  
control**

Close study of each item from the point of view of movement of stores or consumption rate was a strong tool for proper inventory control. These items could be classified into :



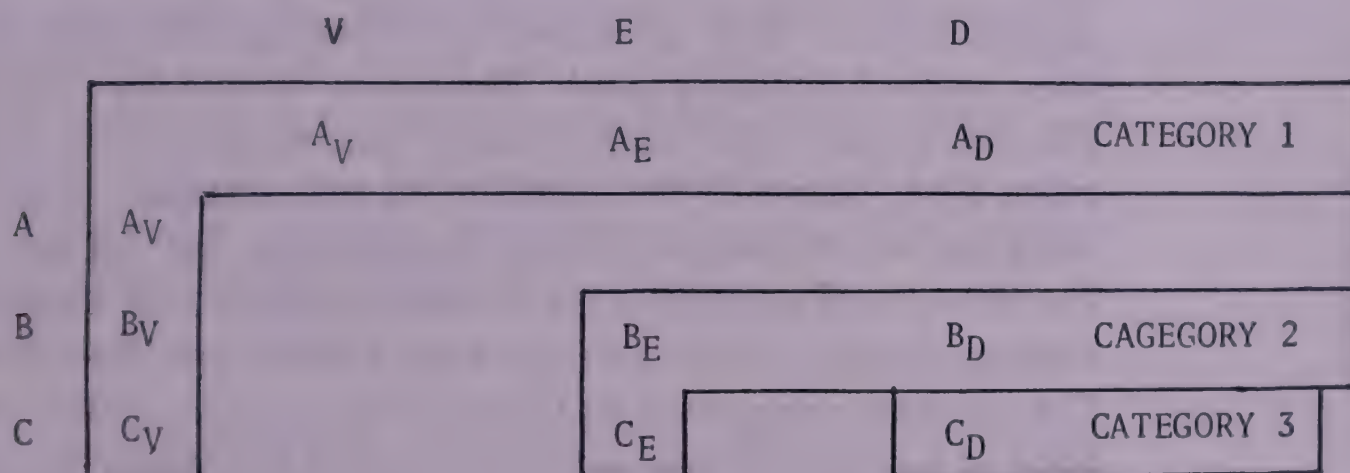
1) Fast moving, 2) slow moving, and 3) non-moving. An understanding of movement of items helped to keep proper levels of inventories for deciding on a rational policy of re-ordering.

Another parameter of materials was their criticality. Criticality implied intrinsic role of a material in achieving the organisation's objective. By using such an analysis items could be classified into three categories *i.e.* Vital, Essential and Desirable. Such an analysis enabled the administrator to give more attention to vital and essential items.

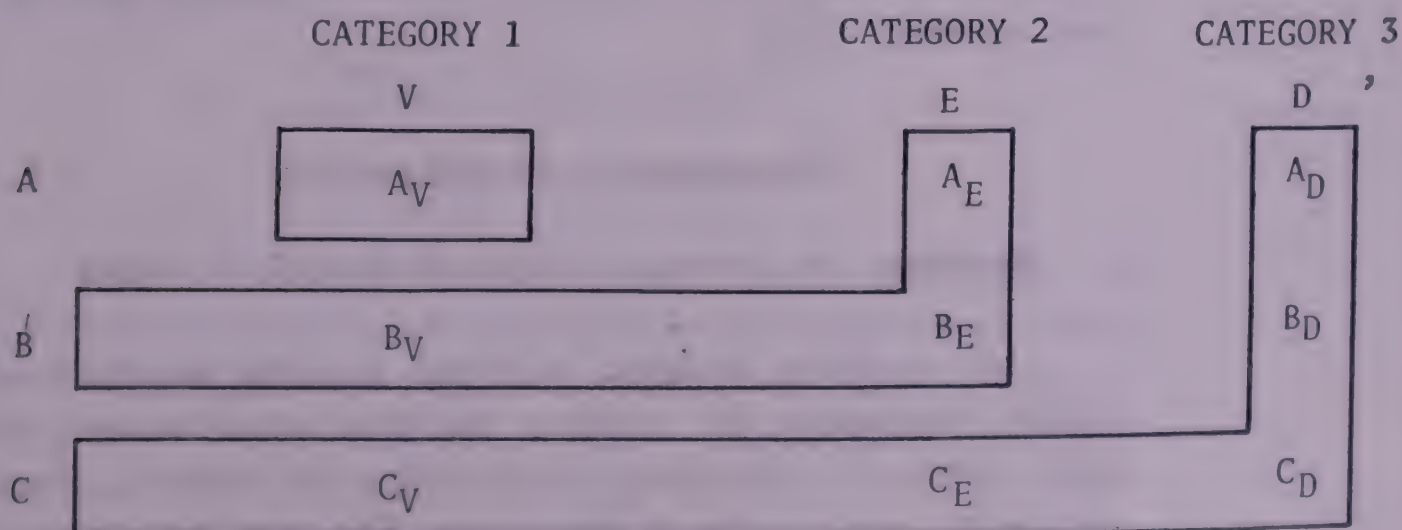
#### VED analysis

The findings of ABC/VED analysis could be coupled together and further grouping done to evolve a priority system of management of stores.

#### Combining ABC & VED analysis



Another model could be :



This simple analysis was a very powerful tool in the hands of logistics and supply administrators. This enabled them to plan for materials, monitor their supply as well as use and control more effectively the A&V items. In many situations in the health field, the use of these techniques had given rich dividends.

#### **Exercises on ABC & VED analysis**

After explaining the concept, an exercise on ABC/VED analysis was given to the participants. A list of 100 drug items with data on their annual cost, collected from a Delhi hospital was circulated to the participants. The participants were required first to rearrange all the 100 items in a descending order. Then they were required to calculate the cumulative cost of each item. The participants were divided into four groups for carrying out this exercise. Each group was given some graph papers and were required to draw a graph. They were to plot the cumulative cost on the Y axis and on the X axis the number of items taking every fourth or fifth items on the list circulated to them. The graph which emerged clearly indicated the cut off points. The first cut off point gave the A items and their cost, distance between the next cut off point gave the B items and their cost. The rest were categorised as C items with their cost. In the next stage of the exercise they were first required to classify the 100 items into VED items based on their own judgement. Then they were required to couple together the findings of ABC/VED analysis to find out the most important items, important items and less important items.

### **Examples from Gautemala**

**Speakers : Mr. Anthony Hudgins & Prof. T. R. Anand**

Mr. Anthony Hudgins, who had personal experience of visiting Gautemala for studying the drug supply system, first spoke about the geographic landscape and terrain, climatic and demographic profile of the country. The total population of



this country was about seven million and half of them lived below the poverty line. The infant mortality rate was about 250 per 1000 population. About one third of the country was low lying forest area. The rest was full of mountains interspersed with streams and rivers where the density of population was extremely low. The access of the people to the health clinics was rather difficult. It might take them 2 to 4 hours to reach the clinics.

Mr. Hudgins had visited some of these clinics to obtain first-hand information on what had been stated above. A questionnaire was then circulated to a number of clinics asking them to list the first 20 essential drugs required by each in order of priority. The list included important antibiotics procaine penicillin, ampicillin, aspirin, anti-diarrhoeal drugs, erythromycin, paediatrics, oral rehydration salts, anthelmintics, oral iron and folic acid, prenatal vitamins, antiamoebics, tetracycline, and benzyle benzoate, etc. The speaker had earlier asked the participants to list essential drugs required at the PHC level in India, Nepal and Bangladesh. He compared the two lists to show a lot of similarity.

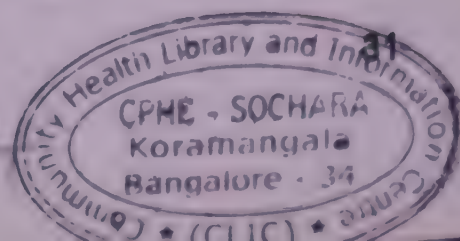
The participants also discussed the geographical and demographic profile of hilly and tarai regions of Nepal and India, It was, however, emphasised that the need for essential drugs would vary to some extent from place to place.

## **Supply Data Analysis**

**Speaker : Mr. Jack Graves**

The next session on the above subject was taken by Mr. Jack Graves. He said that an effective estimate of family planning programme at all administrative levels could be made by using supply management data. This included the total amount of contraceptive supplies distributed, the balance of supplies on hand at the end of the month, and this balance in terms of the

PH-100  
152-36



number of months supply on hand. These data could be reported by all levels of the programme and should be analysed by supervisory staff. Sudden fluctuations in amounts dispensed to consumers or inventory levels which differed from the desired maximum and minimum levels indicated that deficiencies existed. Mr. Graves explained that there might be large stocks of some condoms as a result of the hoarding mentality. In a lighter vein, he remarked that some misuse of condoms might be overlooked, specially if these were being used as balloons by children as it helped remove inhibitions towards condoms to an extent. The total number of months supply on hand should correspond at each level to the minimum and maximum levels established by the programme. An imbalance at any level might be due to the following reasons :

- a) Change in supplies distributed to consumers or issued to lower levels from central and/or intermediate warehouses. This indicated that the system was not keeping up with changes in programme performance and a detailed study might be needed to determine if the problem was only with certain geographic areas or all areas and exactly where the fault lay.
- b) If oversupply at higher level was accompanied by undersupply at a lower level, it could be assumed that the supply system was not properly meeting demand at lower level. This would most likely be seen in a national level analysis if the fault lay with one or more regional warehouses.
- c) An oversupply at the central level might indicate projections of programme performance that had not been met or supplies were not moving down the system.
- d) If undersupply seemed to be generalised at all levels there might be a shortfall due to a special effort to distribute large quantities of contraceptives to users



at the field level for which the supply system was not totally prepared.

- e) An undersupply at the central level might indicate a short-fall of supplies from foreign donor agencies, or insufficient lead time in placing orders.

The speaker then explained with the help of a few graphs distribution of condom in Bangladesh between September 1974 and mid 1979. The graphs showed a period of peak demand (may be because of special campaign or political reason) followed by a crash in demand. This crash was stated to be due mainly to non-availability of supply. This, he said, was a logistics managers' nightmare because the whole thrust of the programme was defeated. Such graphs gave only a broad indication of what was happening and the trend of the use of supplies.

## Evaluating Supply Systems

Speaker : Mr. Brij Mohan

Mr. Brij Mohan began discussion on the topic by highlighting the importance of training which aimed at altering the work behaviour of trainees. He named the six keys to the logistics system as what, how, when, where, who and why. He then defined the evaluation of the supply system as a regular and continuous appraisal of the various functions concerned with the acquisition, storage and flow of all materials directly or indirectly used by an enterprise and the assessment of the various factors which influence the performance of a system, with a view to ensuring progress towards planned objectives (both social and economic). Coming to the why of evaluation, he listed the following reasons for undertaking an evaluation :

Evaluation  
defined

1. *Economic*— Between 20 and 30 per cent of the budget funds of a hospital or any other health institution was incurred on materials supplies. Only a 10 per cent

improvement in logistics management would increase the output of the institution by over 20 per cent. The next economic reason was to decrease the stock of unused supplies.

2. *Technological*—Usually research and development brought in obsolescence.
3. *Sociological*—How are we going to do evaluation ?
  - by establishing measures of performance
  - by establishing a reporting system
  - measuring the results
  - analysing deviations and taking corrective action.

When ? when should we do it that is, time and frequency of evaluation ? at three stages, namely :

- at the design stage,
- at the operation stage, and
- at the post-operation stage.

Where ? where in the organisational level ?

- at the policy-making level. At this level measure the efficiency, effectiveness and efficacy.
- at the managerial level
- at the floor level
- at the level of contact with the client.

Who ? who is responsible for evaluation ?

- users.
- supply managers
- review agencies such as internal and external audits and professional consultants.



The aim of supply management was to provide optimum availability at a prescribed cost. The precise objective would be to make the supply available at the right time, in the right quantity of right quality and at the right cost, at the right place. The basic issues in supply management were:

#### Objectives of supply management

What to have ?

How much to have ?

When to have ?

Where to have ?

From whom to have ?

Stockout occurred when there was

#### Reasons for stockout

- a) Delay in receipt of stores;
- b) Abnormal increase in usage;
- c) Inefficient store keeping;
- d) Delay in clearing receipts; and
- e) Improper phasing of deliveries.

After explaining these concepts, Mr. Brij Mohan circulated a case study from a hospital situation. This case study had a number of deficiencies with regard to logistics management. The participants were divided into four groups and were asked to study the case, evaluate the system and indicate the possible approaches for bringing about improvements. The following were some of the deficiencies as pointed out by the groups:

- 1) Increase in the number of dependents of the workers;
- 2) Increase in *per capita* expenditure;
- 3) Increase in local purchase;
- 4) Increase in length of stay; and
- 5) Inadequate supervision.

## **Stores Management**

**Speaker : Mr. Jack Graves and Mr. Y.K. Agarwal**

### **Prevailing conditions in stores**

Mr. Jack Graves briefly spoke on the subject of stores management before giving the floor to Mr. Y. K. Agarwal. He first took up the issue of stores layout and highlighted the generally prevalent situation in store rooms where one generally found large quantities of junk. Besides, most of the stores were seen functioning in a disorderly fashion. Some of the participants argued that because of bureaucratic delays and rules and regulations it became very difficult to dispose of unused and unserviceable articles.

The speaker briefly identified the shortcomings in the existing layout of medical stores:

### **Shortcomings in layout of stores**

- 1) There was no proper space utilisation. Only 50 per cent of the area was properly occupied.
- 2) The receipt, storage and issue activities were not logically sited.
- 3) Inadequate supervision.
- 4) Lack of attention to employees' comforts and amenities.
- 5) Safety and security aspects left much to be desired.

### **Location of stores**

Mr. Y. K. Agarwal first spoke of the location of stores. The stores he said should be centrally located and easily accessible to transportation of materials. All facilities of water and electricity should be available. The size of the store would depend on the number of items. The design should be such as to ensure free movement, proper ventilation and security.

### **Storage arrangements**

There should be proper storage arrangements to prevent deterioration and damage of the items stored. Medical supplies required controlled temperature, controlled humidity and protection from light. Vaccines and sera must be stored in controlled



temperature. The first in first out (FIFO) principle should be followed.

Mr. Agarwal briefly explained the procedure for receiving stores, carrying out physical examination and preparing the inspection note.

A Bin-card was a record of receipt, issue and stock on hand. A separate Bin-card should be maintained for each item. Responsibility for correct maintenance rested with the stockholder who was answerable for the difference between physical stock and stock balance shown in a Bin-card. In a short, the Bin-card was a perpetual inventory. Unlike the Bin-card, the stores ledger was a stock record of receipts, consumption, balance both in terms of quantity and value. This was maintained by the stores accounts section.

**Bin-card system**

About security measures against theft and pilferage, he said that these could be prevented, if the main building avoided large unprotected or easily accessible windows and wide ventilators. Racks for storing valuable and pilferable nature of items should be so designed as to provide full protection to the materials. As for protection against fire, he referred to some causes of fire and said how these could be prevented.

**Security measures**

## **Evaluating Drugs and Contraceptive Supply Systems**

**Speaker : Mr. Richard Owens**

Mr. Richard Owens said that managers and supervisors of supply systems used information recorded on the forms of the management information system (MIS) to monitor the performance of the supply system and identified areas where improvements were needed. Performance measures could be developed for each level in the supply system and each functional area. It would be useful for managers to establish expected values for the performance measures so that actual values could be

**Performance measures**

compared with the expected ones. In this way, it was possible to take corrective action whenever significant adverse variations were observed. The evaluation should take into account two important types of analysis *i.e.* qualitative and quantitative.

Some of the common problems encountered in a family planning programme were:

#### **Logistics problems**

- 1) Maldistribution of supplies. Some clinics had more contraceptives than others and too many were stored at central levels rather than at field levels where they were required for consumers.
- 2) Poor storage conditions and the resulting deterioration of supplies and packaging materials because of water, heat, insect or other damage. Even though the contraceptives were usable, they might not be attractive to users because the packages were broken and dirty.
- 3) Lack of policy about the quantities of contraceptives to be maintained at different programme levels. This also contributed to maldistribution of supplies.
- 4) Failure to practice the principle of first in first out (FIFO). It was not unusual to find contraceptives in central warehouses that were older than those found in clinics or other outlets.
- 5) Lack of data from the supply system on quantities being dispensed and quantities on hand. The result was that basic data were of poor quality/or did not exist, so changes in the demand were not evident. This caused a serious problem when forecasts of future needs were prepared.
- 6) Poor documentation of transactions within the system.
- 7) Management of the logistics component of the programme was relegated to a low ranking official with insufficient experience or authority to correct problems.



8) The logistics component had very often too low priority for allocation of funds to ensure effective and efficient service to the outlets.

9) Poor supervision; lower level staff neither understand their tasks nor did they think they were important.

Discussing some performance indicators of a logistics system, Mr. Richard Owens referred to the inventory control card (ICC). This card should be maintained for each article of supply. The purpose was to have an up-to-date record of all supply transactions recorded in one place so that management could quickly determine trends in inventory and distribution.

**Inventory control card**

Comparing the results of a physical inventory with the ICCs would reveal if the ICCs were up-to-date and accurate. If the physical inventory and the quantities recorded on the ICCs varied by more than small amounts, there had been pilferage or other losses, shortage in shipment or clerical errors.

**Physical inventory**

The absence or presence of forms would indicate how methodically the logistics system was managed. In some programmes, requests for supplies were made informally, *i.e.* over the phone or in the form of a telegram or a note and no documentation existed on what had been issued by the stores and what had been received. In addition, the absence of supply data and reports indicated that methods used to forecast contraceptive needs did not have quantitative base.

**Forms & reports**

The procedures used in the supply system should be documented in such a way that those involved could be given written supply management guidelines for their particular level. Finally, in many programmes the supply system procedures were not documented and personnel involved in supply below the central level were not always trained in supply management. The result was that decisions were made on an *ad hoc* basis by people who were not prepared to make them. The speaker impressed on the participants the importance of indicators for evaluation which he said, should be:

**Documentation**

- Quantifiable
- Easy
- Sensitive
- Accurate.

A short exercise on the evaluation of performance was then conducted. The participants were given the text of the exercise and asked to point out the deficiencies in an Inventory Control Card (ICC). Some of the deficiencies observed in this ICC were:

1. The monthly consumption was not given.
2. The reorder level was not followed.
3. Physical inventory did not tally at places.
4. Over-stocking of the material.

## **Forecasting Principles**

**Speaker : Prof. Kanti Swarup**

### **Forecasting defined**

Prof. Kanti Swarup said that forecasting meant determining the future requirements taking into account the uncertainty of lead time. One attempted to predict the future making use of information from the recent past. Such an approach, he, however cautioned, should reasonably be sound, provided it was not pushed too far into the future because current experience would be rendered obsolete by technological development. Planning and decision-making were inseparable from forecasting.

### **Limitations of forecasting**

Forecasts presented to the decision maker would generally be contradicted to a greater or lesser extent by the actual outcome. Indeed, the number of erroneous forecasts that had been made was legion. However, that was not an argument against forecasting but simply an acknowledgement of the intrinsic difficulty of the occupation.



Instead of dispensing with the forecaster because of his limitations the decision maker would be well advised to nurture and encourage him for two reasons. Firstly, it was fairly safe to say that the forecaster achieved better results today than would be possible by an educated guess. Secondly, since forecasting was a learning process because the practitioner used his past errors as a source of information which could improve the quality of subsequent forecasts it was highly probable that greater accuracy would still be achieved in the future. He stressed the need for the forecaster and decision maker to have close contact with one another.

Encourage the forecaster

Planning for future requirement was a very vital area. An assessment had to be made of such requirement of the supplies and also the time (when) and the producer (how) of acquiring those supplies. While planning for future requirement, the lead time, including administrative lead time, the stockouts and the average stock of supplies were taken into account. As a basic guideline, we tried to know the past requirement and then estimated the future requirement.

Prof. Swarup mentioned the following management techniques for planning and control of supplies:

1. *Time series analysis*—Under this technique, it was possible to estimate from past records as to what was the requirement of those particular supplies during the last 5 to 7 years. Once this information was available the future requirement for the next 5 to 10 years could be projected. Future requirement under this technique would be determined by the

Trend of consumption;

Seasonal variations;

Cyclinal variations; and

Random variations.

First of all, the past trend of consumption, as already stated, should be found out and side by side the trend of

supplies from the supplier also assessed. Talking of the administrative lead time and the supplier's lead time, he observed that often the former was longer than the latter. They had tried often to control the supplies lead time but did not control the administrative lead time, and there he suggested that they must analyse their own errors to correct the forecasting.

Also emphasised was the importance in forecasting of mathematical models which gave a better insight into the future than otherwise possible. But some errors were bound to be there in the mathematical models also. Therefore, these models be combined with the manager's own experience for better forecasting.

A forecasting exercise on oral contraceptives and condoms was then carried out by the participants. The exercise material contained some data about a national family planning programme in a small country where most of the contraceptive services were provided to its population. As a guideline, different types of data were provided, survey data from World Fertility Survey, data on reported active users, married women of reproductive age, and data on issue of contraceptive from the central to the regional warehouses. The participants were asked to estimate the future needs for orals and condoms based on these past data sources. Two sets of tables, separate for the orals and condoms, were provided to complete this exercise. The Faculty in the end explained to all the participants the method of carrying out the exercises as well as the future projections of both the orals and condoms.

### **Use of Consultants**

**Speaker : Mr. M.G. (Dan) Singh**

Mr. M.G. (Dan) Singh gave his personal experience of the warehouse operations in Canada and mentioned three stores performance indicators ;



1. Percentage order filling *i.e.* percentage of order requisitions fulfilled or supplied against. Sometimes either part or complete requisitions remained unfulfilled.
2. Service time *i.e.*, the number of hours, days, weeks or months it took to deliver/fulfil any given order.
3. Unit cost of operations : whether too high or too low.

The most important performance indicator was service time. Requisitions were sent by the users, consolidated and finally sent to the Central Medical Stores. The different components of the time factor were :

T1 time taken by the requisition to reach the supplier from the user

T2 time taken in processing and packing

T3 time taken for transportation to user

T4 time taken at the user's end in the receipt, inspection and issue, etc.

The total time ( $T1 + T2 + T3 + T4$ ) could be shortened by using the services of the logistics consultants.

The relationship between the cost of services and the size of operation was then explained. With the help of charts it was shown that large size operations for materials/supplies could be carried out at low cost. For high level of services, the cost also rises proportionately. However, with little more inputs or finance towards logistics supply management, the level of the services could be improved considerably. But, unfortunately, the authorities hardly ever pondered over using logistics management consultants.

The speaker, with the help of charts, indicated various problems that needed intervention. The solution to these problems required management studies and systems development efforts. He gave examples of some problems and possible interventions:

**Operational  
improvements**

1)	Problems	Possible Intervention
	Minimising Estimate Stockouts	Improve—Materials planning —Forecasting —Inventory control —Procurement time Introduce—Computerisation
2)	Transportation and Distribution	—Use faster modes of Transport Better scheduling Use spare capacity of buses
3)	Cost Reduction	—Minimise pilferages and breakages, optimise inventories
4)	Overall Systems Improvement	—Determine and establish optimum number, size and location of warehouses. Improve Management information system

#### Examples of management consultancy

Some typical examples where management consultancy would be applicable and beneficial were : 1) Stores lay out. Improved storage retrieval methods including mechanisation, semi-mechanisation and/or automation. 2) Basic operational systems and procedures—development of operation manual relating to indenting, procurement, storage and retrieval, issue, reporting/inventory control, packaging, despatch, transportation



etc. 3) Computerisation. 4) Forms design. 5) Design of training programmes for logistics.

In conclusion, Mr. (Dan) Singh mentioned the following steps for a major consulting assignment:

- 1) Once it became apparent that an external consultant might be needed, an individual and/or a committee should be selected on the basis of their knowledge of the proposed project.
- 2) The Project Coordinator/Committee undertakes the preparation of *Terms of Reference and Budget* prior of the invitation of consultants. The terms of reference should provide:
  - i) A precise statement of the study's objectives.
  - ii) An outline of the scope of work defining each major task to be performed.
  - iii) A summary of the data, facilities and services which the user will provide to the consultants.
  - iv) A definition of the results desired and the criteria and method for evaluating the work on conclusion of the project.
  - v) A project schedule including time frame for completion; milestones and methods of monitoring the progress of the assignment.

### **Development of Checklist for Evaluation**

**Speaker : Mr. Richard Owens**

Mr. Richard Owens emphasised the importance of logistics checklist for evaluation purposes. He distributed copies of the checklist to the participants who were divided into four groups for visiting the drugs and contraceptive stores mentioned below. They were required to evaluate the stores as per checklist.

GROUP 'A'—Medical Stores, Safdarjang Hospital.

GROUP 'B'—Union Carbide Stores for Social Marketing of Nirodh.

GROUP 'C' — Medical Stores of Employees State Insurance Corporation, New Delhi.

GROUP 'D' — Contraceptive Stores of the Union Ministry of Health and Family Welfare, New Delhi.

All the four groups spent about a half-day in the respective stores. In the afternoon, each group held discussion based on the checklist and prepared a report for presentation to the entire class in the plenary session next day. The following guidelines were given for preparation of the field visit reports:

I. *Methodology*

- a) What did you like ? Why ?
- b) What did you not like ? Why ?
- c) What did you wish to see ?
- d) Checklist description.

II. *Findings*

- a) Major problems/issues identified
- b) Major recommendations.

## **Use of Computers**

**Speaker : Mr. Anthony Hudgins**

Mr. Hudgins, from his experience in Thailand and Brazil, briefed the participants on the need of using computer in the logistics supply management in health and family planning programmes. In Thailand, computers were used for monitoring the family planning logistics supply system. Thailand with a population of 50 million had 60 per cent of its people in the reproductive



age-group who used contraceptives, and the family planning programme in Thailand was one of the most successful programmes in the world. He explained the uses of the hardware and the software in computers and then with the help of overhead transparencies illustrated how to monitor the logistics supply system in family planning programmes.

## **Analysing Performance Problems**

**Speaker : Mr. Jack Graves**

Mr. Jack Graves at the outset pointed out that so far only technical sessions on logistics were covered. In this session on **Analysing Performance Problems**, the focus would be on human performance. He said when discrepancy was noticed between some one's actual performance and his desired performance, it was called a performance discrepancy. Examples of this could be found anywhere. A typist who did not type accurately enough to suit us. The secretary who organised the schedule to the point of bossiness. Many of these discrepancies need not exist and could be eliminated. Thus, when someone said that he had a training problem he had detected a difference between what was desired and what was actually happening. But such statements talked about the solutions and not of the problem. One should ask oneself at this stage if the discrepancy was important. If it was not, it was best to ignore it. But if performance discrepancy existed and was considered important, training was one of the many solutions. The performance discrepancy could be due to genuine skill deficiency. In such a situation, there were three tentative solutions :

**Performance  
discrepancy  
defined**

1) If the employee used to do the job before but used the skills only rarely, consider systematic practice. 2) If he used to do it and still got lot of practice, consider providing more feedback. 3) If he had never done it, consider formal training. Even if training seemed to be the only remedy, on the job

**Solutions to  
skill deficiency**

training might be easier and cheaper and just as good as formal training.

### **Change the man or change the job**

Anytime someone could not handle an existing job, we are stuck with the two universal alternatives to all solutions : Change the job or change the man. Examples of changing the job : if, instead of requiring someone to remember a sequence of steps, you provided him with a checklist to which he could refer any-time he wanted to know what to do next, you had not changed the job. You had simplified it and presumably it could now be handled, by someone with lesser capabilities.

'Changing the man' meant to substitute another person for the apparent non-performer. Sometimes it was quite plain that this was inevitable as when physical limitations prevented performance.

### **Causes for non-performance**

Mr. Graves described four courses for non-performance even when skill deficiency was not the reason:

- 1) It was punishing to perform as desired: Like the boss telling his subordinate, "You did such a good job on that report. I am going to let you do all of them from now on".
- 2) It was rewarding to perform other than as desired : Why did not prisoners change their way of life after they were released. Because the criminal considered contrary behaviour was more rewarding, had more payoffs, led to more desirable outcome.
- 3) It simply did not matter whether performance was as desired : Nothing happened if he took the trouble to perform as someone wanted; nothing happened if he did not.
- 4) There were obstacles to performing as desired : If a person knew how to perform but did not, look for obstacles. Look for things that might be getting in the way of his performance as desired. Look for his lack of time, lack of tools.



Finally, once a remedy was found for a performance discrepancy it was worth considering whether the remedy was worth the probable results.

### **Specific Local Problems**

**Speakers : Prof. Somnath Roy & Mr. Jack Graves**

Prof. Somnath Roy and Mr. Jack Graves discussed the specific local problems of the participants in the next session. Prof. Roy emphasised the importance of relating the knowledge acquired in this course by the participants to their own work situations. He said that each participant should transmit this knowledge to his fellow colleagues in their work situations.

Mr. Jack Graves quoting from his experience of logistics management in 21 countries said that the problems were more or less the same everywhere and identified that the root cause was with the pipeline of supply and explained the need to control the flow in this pipeline. He reiterated it was very necessary to strike a balance between various elements of the logistics supply system, such as personnel, distribution, etc.

Prof. Roy gave the participants a real problem in relation to the supply of Cu-T in one of the districts of this country and invited comments from them. It inspired a very fruitful discussion on identification of bottlenecks, etc., pertaining to the family planning supplies at the peripheral level.

The participants presented the course Evaluation Report in the final session, which was chaired by Prof. T.R. Anand, Dean of Studies, NIHFW. (Text of report at Appendix 10).

### **9. CONCLUDING SESSION**

The concluding session of the course was presided over by the Additional Secretary and Commissioner, Family Welfare, Government of India, Mr. R. P. Kapoor. The Director Prof. Somnath Roy welcomed the Chief Guest and the invitees.

He then requested the Co-Course Director Dr. A.K. Agarwal to present the Course Report. A few remarks and impressions about the Course were also given by the US Consultant, Mr. Jack Graves and one of the participants from the group.

After distributing certificates to the participants Mr. R.P. Kapoor in his valedictory address highlighted the importance of Logistics Management in the Health and Family Planning Programme. He pointed out that this had been a neglected area in the programme. As a result the delivery of health services, and for that matter the family welfare programme had been affected. There had to be a balance between the cost of stockouts and carrying of excess inventories as both affected the programme, the former by loss of life or an unwanted birth taking place while the latter by un-economic investments. The aim must be to maximise the patient care or patient satisfaction per unit cost, especially to maintain a satisfactory level of work quality and consumer satisfaction. The Health and Family Welfare Administrations had to be very careful in getting the maximum benefit of the scarce resources and in optimising their use. He complimented National Institute of Health and Family Welfare for organising this course in an area which had been neglected so far in the developing countries of this region and hoped the participants would be able to apply these techniques in their day to day work when they went back to their organisational situations in their countries.

The Course Director R.S. Gupta thanked the Chief Guest, Consultants, members of the Planning Committee, the Course Advisor, guest speakers, administrative staff and the participants for making this course a success.

## **10. RECOMMENDATIONS**

The following were the major recommendations of the group which attended the Inter-country Course on Logistics and Supply Management (Details at Appendix 10).



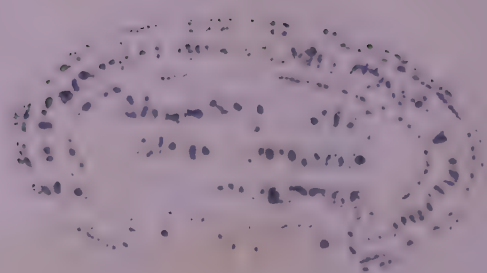
*Shri R. P. Kapoor,  
Additional Secretary  
and Commissioner  
(F. W.) distributing  
certificate to the parti-  
cipants*



*Participants of the  
Course at the Conclud-  
ing Session*

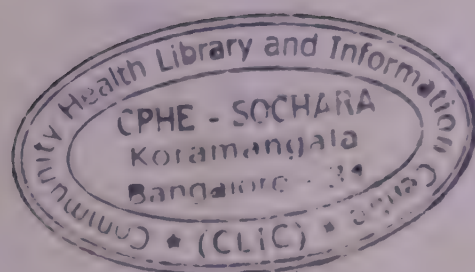
*Discussion during tea  
break*







1. The course was successful in meeting its objectives and it provided a forum for exchange of ideas and experiences among the participants of Bangladesh, Nepal and India. There was a general consensus for organising more of such courses to fill the existing void for Logistics Management Training at different levels.
2. It was recommended that case studies should be prepared based on the actual conditions of stores in the countries of this region which should be used in such training courses.
3. A few aspects of general management concepts should also be included in the course and there should be more delegation of powers at the peripheral levels for effective management of the logistics system.



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**Planning Committee**

With the approval of the Government of India, a Planning Committee was constituted to provide guidance and help in relation to policy matters and coordination of this course. The composition of this committee is as follows :

- |    |  |                  |
|----|--|------------------|
| 1. | Prof. Somnath Roy<br>Director, NIHFW   | Chairman         |
| 2. | Dr. M.D. Saigal<br>Additional Director General<br>Directorate General of Health Services<br>Nirman Bhavan, New Delhi       | Member           |
| 3. | Dr. R. C. Sharma<br>Deputy Director General (Stores)<br>Directorate General of Health Services<br>Nirman Bhavan, New Delhi | Member           |
| 4. | Miss Suma Subbanna<br>Deputy Secretary<br>Ministry of Health and Family Welfare  | Member           |
| 5. | Mr. V.K. Sharma<br>Sales Promotion Executive<br>Nirodh Marketing Division<br>Ministry of Health and Family Welfare         | Member           |
| 6. | Mr. John Rogosch<br>USAID, New Delhi   | Member           |
| 7. | Mr. M. G. (Dan) Singh<br>USAID, New Delhi  | Member           |
| 8. | Prof. T. R. Anand<br>Dean, NIHFW   | Member           |
| 9. | Dr. R. S. Gupta<br>NIHFW   | Member-Secretary |



**Secretariat**

		Telephone	
		Office	Residence
1.	Dr. R. S. Gupta Course Director	651691	660357
2.	Shri Bhagat Singh Dy. Director (Administration)	664882	816078
3.	Dr. A. K. Agarwal Co-Course Director	669656	608615
4.	Shri M. V. N. Murthy	651691	
5.	Shri B. R. Bhakri	665959	

### **List of Speakers**

1. Jack L. Graves  
Chief, Management Analysis Section  
Programme Evaluation Branch  
Division of Reproductive Health  
Centres for Disease Control  
Atlanta, Georgia-30333 (U.S.A.)
2. Anthony Hudgins  
Public Health Analyst  
Division of Reproductive Health  
Centres for Disease Control  
Atlanta, Georgia-30333 (U.S.A.)
3. Richard Owens Jr.  
Logistics/Field Management Adviser  
Integrated Rural Health/F.P. Services Project  
John Snow International HMG  
Ministry of Health Project in Cooperation with USAID  
Post Office Box-1600, Patan Dhokha, Lalitpur  
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4. R. C. Sharma  
Deputy Director General (Stores)  
Directorate General of Health Services  
Nirman Bhavan, New Delhi
5. Vikramajit  
Advisor (Marketing)  
Department of Family Welfare  
Ministry of Health and Family Welfare  
Nirman Bhavan, New Delhi
6. R. C. Monga  
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7. G. K. Biswas  
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8. Vishwa Vibhuti  
Deputy Assistant Director General (Stores)  
West Block, Wing No. 6  
Sector-I, R. K. Puram, New Delhi
9. Y. K. Agarwal  
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Government Medical Stores Depot  
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10. Brij Mohan  
2/13, Shanti, Niketan  
New Delhi-110021
11. Kanti Swarup  
Professor  
Indian Institute of Public Administration  
Indraprastha Estate, New Delhi-110002
12. M. G. (Dan) Singh  
Management Specialist  
Office of Health, Population and Nutrition  
USAID, American Embassy  
Chanakya Puri, New Delhi-110021
13. Somnath Roy  
Director, NIHFW  
New Delhi
14. T. R. Anand  
Dean of Studies and Head,  
Department of Medical Care & Hospital Administration  
NIHFW, New Delhi
15. R. S. Gupta  
Head, Department of Management Sciences  
NIHFW, New Delhi
16. A. K. Agarwal  
Department of Medical Care & Hospital Administration  
NIHFW, New Delhi

**Welcome Address by Prof. Somnath Roy, Director, NIHFV**

*Mrs. Mohsina Kidwai, Hon'ble Minister of State for Health and Family Welfare, Government of India, Dr. Richard Brown, Mr. Michael Dennis, Mr. Jack Groves, Dr. R. S. Gupta, Distinguished Participants, Ladies and Gentlemen,*

It gives me great pleasure to welcome you all on my behalf and on behalf of the Faculty of the Institute, to the inaugural function of this Inter-country Course on Logistics and Supply Management for Health and Family Planning Programmes. This course is being organised by this Institute in cooperation with the Centres for Disease Control (CDC) Atlanta, USA and with financial assistance from the Regional Training Service Agency (RTSA/ Asia), University of Hawaii, USA.

Mrs. Mohsina Kidwai, our Hon'ble Minister of State for Health and Family Welfare is well known for her valuable social work among the poor and the downtrodden in this country and she has had long experience in the organisation of political activities. Before taking her present assignment, she was the President of the Congress Party in Uttar Pradesh. She is the Vice-Chairman of the Governing Body of our Institute and has been taking keen interest in its activities and development. We are grateful to her for kindly consenting to inaugurate this important course.

Mr. Richard Brown is representing the United States Agency for International Development (Delhi).

Mr. Jack Graves is the Chief, Programme Service Section, CDC, Atlanta, USA and he has had varied and rich experience in the field of health and family planning. He has worked in 19 countries in Asia, Africa and Latin America and provided technical assistance and training in supply and clinic management in family planning programmes.



Mr. Anthony Hudgins is presently working as Public Health Analyst in the Division of Reproductive Health at CDC, Atlanta. He has had extensive training experience in developing and conducting training workshops in clinic and logistics management.

Mr. Michael Dennis is presently working as Administrative Associate/Programmes, RTSA (Asia), University of Hawaii, Honolulu.

I welcome them all, and we look forward to a very fruitful association and collaboration. I also extend a very hearty welcome to the participants, particularly those coming from Nepal and Bangladesh and sincerely hope that their stay will be comfortable and beneficial.

For those of you who have come to this Institute for the first time, a short introduction to it will be in order. This National Institute of Health and Family Welfare (NIHFW) has been formed by amalgamating two erstwhile national institutes, namely, the National Institute of Health Administration and Education and the National Institute of Family Planning, in March, 1977. NIHFW serves as an apex technical organisation in the country for the promotion of health and family welfare programmes through education and training, research, evaluation and advisory and consultation services. This Institute is unique in having an unusually multi-disciplinary character. It has 10 technical departments, each one having multi-disciplinary composition. It has a total staff strength of more than 400 and faculty members are about 50. As part of a continuing education programme, this Institute organises in-service training courses for senior level health and family planning officials and key trainers. These courses are organised on request from the Central Government, State Governments, and other national and international organisations. Some of these courses are organised in collaboration with other national and/or international organisations/agencies. Among the several varieties

of courses being presently organised are those on Hospital Administration and Medical Care, Materials Management in Hospitals, Management Training for Different Categories of Personnel, etc. The present course is one of such in-service training programmes.

I would like to briefly refer to the genesis of this course. Last year in February/March Dr. Harold Hunter, Director, RTSA (A) at the University of Hawaii, USA visited this country and met the senior officials at the Ministry of Health and Family Welfare, Government of India, and expressed his desire to hold an Inter-country Workshop/Course on the Logistics and Supply Management in Family Planning Programmes. Following the suggestion of the Ministry that National Institute of Health and Family Welfare should be entrusted with the responsibility of organising and conducting this course, a few meetings were held with Dr. Hunter at this Institute and it was agreed to hold the course here. A Planning Group was then formed with representatives from the Ministry of Health and Family Welfare, USAID and this Institute. Subsequently, exhaustive and detailed exercises were carried out with experts from CDC, Atlanta and USAID (Delhi) for finalisation of the programme of the course.

As health and family planning programmes have expanded in India as well as in the neighbouring countries and become more sophisticated, the logistics and supply system have had to respond accordingly. Initially viewed as simply a drug and contraceptive distribution network, the logistics systems have now become very complex. Lack of proper management of the logistics and supply of drugs, vaccines, contraceptives, equipment, etc. may become a major bottleneck in programme operations.

Logistics may be defined as the science of procuring, maintaining and transporting supplies. The primary functions in the drug and contraceptives logistics cycle are selection, pro-



curement, distribution and use. Each of these functions is fraught with numerous pitfalls which may arise from poor management, unskilled staff, inadequate resources, and difficulties with the doctors, para-medical staff and patients. In spite of these pitfalls there is great scope for improvement of supply logistics. Optimal use of available resources and co-operation among all concerned are necessary for substantive and lasting improvements. Planning and implementing changes for such improvement in drug and contraceptive supplies require wise management of the components of the supply system which include administration, information system, personnel, facilities, equipment and finance.

Planning, implementation and evaluation are three phases which continually repeat to form the cycle of planning. Basic steps for planning to improve the drug supply system should be followed. Implementation strategy should be established, and ideally, internal and external evaluation should be carried out before the beginning of the next cycle of planning.

For determining the quantities of drugs and contraceptives to be procured, methodological approach should be followed, and the methods for estimating quantities may be service-based, consumption-based or population-based. For the determination of the order of quantities one should consider the supply pipelines, the lead time, limited funds available and potential loss.

Procurement, which is defined as the process of acquiring supplies, is a cyclic process which requires a sequence of a number of steps, the timetables for which should be clearly specified and closely followed.

Careful selection of suppliers is important because it can affect both the quality and the cost of the drugs and contraceptives to be acquired. An effective procurement staff must develop a system of determining reliability of suppliers and

eliminating those suppliers whose performance is clearly sub-standard.

Quality assurance in the drug supply system, which is to make certain that each drug reaching a patient is safe, effective and acceptable, is most vital. The officials must balance the costs of quality control procedures against the gains that will result from having safe and effective drugs. Administrative procedures must be established for quality assurance activities. This would include training and supervision of staff members at all levels of the supply process and an effective information system.

A well designed and well managed distribution system should maintain drug quality, optimise inventory management, make the best use of available storage facilities, provide information for forecasting future drug needs, use available transport resources, reduce pilferage and fraud and minimise spoilage and expiration of products. Inventory management is most challenging.

Adequate storage and regular delivery of drugs, vaccines, contraceptives, etc. are imperative for effective operation of public health and family planning programmes, but these are frequently neglected. Medical stores or warehouses should be located in such a manner as to promote the fastest and least expensive transport of supplies from the source to the user.

Efficient delivery requires careful planning and execution. Various factors which need consideration include delivery intervals and stock levels, transport selection, schedules and routes, etc.

An overall effective management of the system would be the most important goal. Ladies and gentlemen, I just wanted to share some of my thoughts and concern.

Once again I extend my hearty welcome to you all, and wish your deliberations all success.



**Address by Dr. R.M. Brown, USAID, New Delhi**

*Mr. Chairman, the Minister of State for Health & Family Welfare, Ladies and Gentlemen,*

I am extremely pleased to have the opportunity of participating on behalf of USAID in this ceremony inaugurating the Course on Logistics and Supply Management for Health and Family Planning Programmes.

Logistics is a subject which is often given less attention when compared to Policy Planning, Program Design, Training and the like. In Program Planning, for example, logistics is rarely mentioned. When staffing plans are prepared, they often do not provide for the recruitment of skilled logistical managers. However, once one operates at the field level, this aspect of Management Science becomes of crucial importance, particularly if one is faced with feedback that the system is not able to operate effectively for lack of necessary materials.

Private sector firms and institutions give logistics management high priority as it enables an organization to reduce costs, increase efficiency and profits. Ensuring the supply of material throughout the system avoids costly slowdowns or work stoppages. One has but to look at the accomplishments of the Japanese automobiles manufacturers in successfully reducing costs related to inventory of materials thereby permitting them to emerge as a predominant force in this industrial sector.

It is, therefore, commendable that this subject is today being given its due concern and that a course has been arranged to present principles which can be used in modifying existing systems and defining new systems which will enhance the more efficient and effective distribution and use of scarce resources.

It is a pleasure to observe the close cooperation between the Ministry of Health and Family Welfare, Indian training insti-

tutions such as the National Institute of Health and Family Welfare, skilled Indian consultants and our own Government's Centres for Disease Control and the Regional Training and Service Agency for Asia in strengthening the capability of logistics managers at key levels in Health and Family Planning Delivery Systems. India, Bangladesh and Nepal have mounted major efforts to improve their rural health and family planning programs, but efficiently providing drugs, supplies and materials to all levels of the delivery system in a timely fashion continues to be a major area to which attention can usefully be given.

As you are well aware, USAID is very interested in stimulating and supporting technical and institutional collaboration which can serve the best needs of countries with which we work. The workshop exemplifies this commitment and interest in this mutual collaboration.

We have been advised by course organisers of this being an impressive group of candidates both within and outside India who have been able to join this workshop. We know that interactions during the workshop will increase the ability of all participants to deal with logistic problems. We in India see this Logistic Workshop as a broad effort which will hopefully lead to other workshops and training activities at regional and State levels which can build on the outcomes of this workshop. We also hope it will lead to similar levels of efforts in Bangladesh and Nepal.

Finally, on behalf of the USAID Mission in New Delhi, I want to express our thanks to the Minister and the Ministry of Health and Family Welfare for supporting the development of this workshop, to Dr. Roy, Dr. Gupta and the National Institute of Health and Family Welfare for organising and hosting this workshop, and to the Centres for Disease Control (Atlanta) and the University of Hawaii Regional Training Service Agency Staff for their technical and administrative contributions. To you and to the participants, we wish you a successful workshop as a further step in strengthening this key component of health care.



**Message from the Dean of the School of Public Health,  
University of Hawaii, Mr. Jerrold M. Michael and Director,  
RTSA (A) Dr. Harold R. Hunter and Administrative  
Associate/Programmes RTSA (A) Mr. Michael N. Dennis**

It is an honour and a privilege for the Regional Training Service Agency/Asia, of the School of Public Health, University of Hawaii, to collaborate with the highly respected National Institute of Health and Family Welfare, India, and the Centres for Disease Control of the United States Public Health Service, in conducting this 'Regional Workshop on Family Planning Logistics and Supply Management.'

This workshop concerns broadly the needs of the region and builds on the one held in Jakarta, Indonesia, during September 1982. However, the experiences and needs of a large country like India in its various regions and States may have similarities to the logistics problems of other countries. Within this framework participants and observers from Bangladesh and Nepal who are attending this workshop may gain insights applicable to their own systems and be able to adapt specific logistics training plans relevant to the needs of their countries. Thus, this workshop marks progress through increasing in-country specificity as was envisioned in Jakarta. Further, we view this mechanism as only the first step in building a health and family planning infrastructure in Asia and elsewhere. We hope that as a result of our efforts positive changes will occur in the movement of needed family planning supplies and services. In many places the primary health care delivery system is impeded by logistical limitations. This workshop builds administrative support for health delivery to support health care providers ultimately. Better logistics management will improve accessibility and acceptability and lead to a step closer to health for all. This workshop also marks cooperation between two institutions of higher learning in public health, the School

of Public Health, University of Hawaii through the Regional Training Service Agency, and the National Institute of Health and Family Welfare. We hope this represents a further step in continued mutual collaboration among colleagues with similar goals and objectives.

This workshop also sets out a role for institutions like the School of Public Health and the National Institute in service. Whatever academic pursuits our institutions follow, we must continue to address pressing health and development problems in society in which they exist.

We are particularly proud to work with the National Institute because we nurture the hope that this effort will have an impact on the management and operation of a health system for one of the largest countries in the world.

As we work together, we gain respect for each other's skills and insights and the trust to freely discuss problems so that solutions can be found. Assistance must progress from a client-centered relationship to a partnership in which we learn together.

A partnership with our Asian colleagues in endeavours to improve the health and welfare of the people in our region has been a long-standing objective of this University and of RTSA (A). This workshop is essentially another step towards that goal.

It will be one of our tasks to examine similarities and differences in the management of the supply function and to seek common points on which we can base logistics systems for health and population activities.

The convening of this workshop reinforces our belief that when colleagues of differing races, citizenships and creeds meet to discuss ways in which we can live more meaningful lives, there are more similarities than differences revealed. It illustrates further that these professional and social concerns



that we must face in our lives can indeed be resolved from the combined efforts of dedicated people like yourselves sharing experiences, knowledge and attitudes. We all hope that the deliberations that will take place in this workshop will result in new knowledge, skills and insights, and their dissemination throughout India, Nepal and Bangladesh. We hope too, that this workshop will bear fruit in the field and lead to productive changes in the service delivery system, so we contribute to the promotion of accessible health and family welfare services that lead to health for all.

I send you my very best wishes for a high level of achievement to those of you who have worked so hard to make this logistics workshop possible and productive.

**Inaugural address of the Minister of State for Health & Family Welfare, Government of India, Mrs. Mohsina Kidwai**

*Prof. Roy, Dr. Richard Brown, Mr. Dennis, Consultants from the United States, Delegates from Bangladesh, Nepal and India, Members of the Faculty, Ladies and Gentlemen,*

It gives me immense pleasure to be here at National Institute of Health and Family Welfare this morning to inaugurate the Inter-country Course on Logistics and Supply Management for Health and Family Planning Programmes. In recent times, countries of this region have made considerable progress in practically all fields. In the area of health, smallpox has been eradicated, mortality per thousand of population has been considerably reduced and the life expectancy at birth has increased. A fairly extensive network of dispensaries, primary health centres and hospitals providing specialised curative services has been developed and a large number of medical and health personnel at various levels have become available. Significant indigenous capacity has been established for the production of drugs and pharmaceuticals, vaccine, sera, hospital equipments, etc.

In spite of such an impressive progress, the demographic and health picture of the countries of this region is still a cause for serious concern. The high rate of population growth continues to have an adverse effect on the health of the majority of the people and on the quality of their lives. The mortality rates for women and children are still distressingly high. Almost one-third of the total deaths occurs among children below the age of five years and infant mortality rate is around 125 per thousand live births. Only 31 per cent of the rural population has access to potable water supply and 0.5 per cent enjoys basic sanitation.

India is committed to attaining the goal of 'Health For



All by 2000 A.D.' through the universal provision of comprehensive services adopting the primary health care approach. Attainment of this goal requires a thorough overhaul of the existing approaches to education and training of medical and health personnel and reorganisation of the health services infrastructure. Irrespective of the changes, no matter how fundamental, that may be brought about in the overall approach to health care and restructuring of the health services, not much headway is likely to be made in improving the health status of the people unless success is achieved in securing the small family norm through voluntary effort and moving towards the goal of population stabilisation.

Shortcomings in the regular delivery of medical and family planning supplies to the outlying health units are a major bottleneck in providing adequate health care for the rural people. At the root of the problem is often lack of planning, perhaps because delivery of materials is considered at best as a necessary evil and not as a potentially creative element in maintaining the continuity of service between the centre and the periphery. Seen as a whole, with its varied functions of distributions of supplies, collection and reporting of inventory, training, supervision and communication, the delivery system of health and family welfare supplies becomes a vital link in the flow of medical services between the central and peripheral levels.

One of the main preoccupations of the Governments of these countries is strengthening of primary health care in rural areas. Yet health activities in outlying areas are unlikely to succeed without appropriate support from a central point. For example, whatever form of health and family planning programme is used, medical commodities—equipment, drugs and contraceptives—must be delivered regularly to the communities concerned. The more the communities reached by primary health care services, the greater the need for an effectively functioning medical commodities distribution system.

In a 1975 policy paper, the World Bank concluded that the major causes of poor health in the developing countries were demographic factors, malnutrition, sanitary conditions and poor housing. While the primacy of these factors is undeniable and the value of long range improvement unquestionable, it is equally important to recognise that the diseases which they foster and aggravate are more directly responsible for death and disability. Fortunately, prevention and treatment of these diseases do not have to wait for the betterment of underlying social conditions. The diseases themselves can, for the most part, be cured or controlled by the appropriate use of pharmaceutical products.

The World Health Organisation estimates that 60 to 80 per cent of the people in developing countries are without access to even the most essential drugs. Nonetheless, a government's limited allocations for drug procurement may account for up to 40 per cent of its overall health care budget, making efficient management of drug expenditures a vital consideration for health officials.

In many countries, high costs and frequent shortages remain chronic problems for drug supply. A recent study done by the Department of Personnel and Administrative Reforms in India made the following observations:

- '1. The quantity of medicines received in the Primary Health Centres falls short of their requirements.
2. The supply of medicines to the Primary Health Centres/Sub-Centres is often erratic and even common medicines are out of stock and remain so for a considerable period.
3. The medicines received in the Primary Health Centres/Sub-Centres are at times quite old and very close to their expiry date.



4. There is no proper storage facility for medicine and vaccines which are required to be kept under low temperature.'

At times our local health beliefs frequently push para-medical workers into prescribing practices which deviate sharply from standard medical training and waste limited drug resources. Limitation of funds for purchasing and distribution of drugs nearly always results in apparent shortages in a situation of seemingly insatiable demand. An inefficient storage, transport and distribution lead to duplication, waste, theft and spillage, further depleting an already limited supply.

Over the past several decades, various management techniques of industrial engineering have been able to make major improvements in the logistics system of all organisations, including health, with supply and distribution components. This functional area is particularly sensitive to significant improvement in technical service and to reduction in cost by the application of analytical techniques. A **WHO** study brought out that the medical stores and supply systems specially in the developing countries gave no indication that the advances made in this field are appreciated. There is probably no area where adoption of modern management techniques will have quicker payoff in improved services at reduced cost than this. A casual estimate of the supply system expenditure indicates that over 10 to 15 lakhs of rupees per year can be saved in each supply organisation through the application of modern inventory control and distribution policies. The staff members of **WHO** carrying out the survey found no organisation which was using formal analysis of the supply system. All supply policies reviewed were based on intuitive use of historical experience rather than a formal mathematical analysis of the current and future system needs of a country.

I am happy that National Institute of Health and Family Welfare is conducting this course in a highly specialised area for the three countries of this region—namely, Bangladesh.

Nepal and India, and I am glad that Consultants from the Centres for Disease Control are here to assist this Institute in conducting this programme. I hope that this course will enable the participants to develop a suitable system of logistics and supply management on modern scientific lines for their own organisations in accordance with their own peculiar conditions.

I have great pleasure in inaugurating this course, and wish you all success in your endeavours.



**List of Participants for the Inter-Country Course on Logistics  
and Supply Management for India, Nepal and Bangladesh,  
(February 13-25, 1984)**

<i>Name of Country/ State</i>	<i>Name &amp; Designation of the Participants</i>
<b>Bangladesh</b>	1. Mr. MOHAMMED KOBBAD Logistics Specialist in Population and Health Division, USAID/Dhaka.
<b>Nepal</b>	2. Mr. HANSHA PRASAD MALLA Section Officer I/C of Logistics for Indent and Procurement Division, Department of Health Services, Nepal.
	3. Mr. HIRALAL RAJBANSH Health Inspector, Integrated Community Health Services, Nepal.
	4. Mr. GANESH MAN SHRESHTHA Chief Supply Officer, NEP/MCH Project, Nepal.
<b>India</b>	5. Dr. S. JAGANNAYAKULU, District Medical & Health Officer, C/o Director of Health & Medical Services, Andhra Pradesh, Hyderabad.
	6. Mr. M.V. BAPIRAJU SARMA Deputy Director of Health and Medical Services, State Family Welfare Bureau, Hyderabad.
	7. Dr. K. BALAIAH Medical Officer, PHC,

C/o Director of Health & Medical  
Services, Andhra Pradesh, Hyderabad.

8. Dr. J.K. ANJAN  
Medical Officer, Cl. II, S.T.D. Cell,  
Directorate of Health & Medical  
Services & Medical Education (Health),  
Ahmedabad.
9. Dr. NARAINA EDO  
Health Officer, PHC, Bicholim, Goa.
10. Dr. B.S. SIDHU  
Project Officer (ADP),  
Nahan, Simla.
11. Dr. M.N. SHIVA KUMAR  
District Surgeon,  
Directorate of Health & Family Welfare  
Services, Bangalore.
12. Dr. T.C. SEETHARAM  
Medical Officer, Directorate of  
Health & Family Welfare Services,  
Bangalore.
13. Mr. KRISHNAN NAIR  
Deputy Secretary to the Government of  
Health (FW) Department, Government  
of Kerala, Trivandrum.
14. Dr. G. CHELLAPPAN  
Assistant Director of Health Services (FP),  
Government of Kerala, Trivandrum.
15. Dr. N.B. SHINDE  
Assistant District Health Officer,  
USAID Project, Maharashtra.



16. Dr. B.M. SIRSHIKAR  
Deputy Director of Health Services,  
(FWI), FP. Bureau,  
Directorate of Health Services,  
Pune, Maharashtra.
17. Dr. P.B. KHEDEKAR  
Planning Officer, USAID,  
C/o Directorate of Health Services,  
Bombay.
18. Mr. N. CHAKRAVORTY  
Administrative Officer,  
Directorate of Health Services,  
Meghalaya.
19. Dr. M.R. SATHE  
Superintendent Government Medical  
Stores, Indore.
20. Dr. THANSIAMA  
Deputy Director of Health Services,  
Mizoram, Aizwal.
21. Dr. HARJIT SINGH KHAGURA  
District Project Officer USAID,  
Faridkot.
22. Dr. JASDEV KAUR SIDHU,  
District Project Officer, USAID  
Bhatinda.
23. Dr. PRAMOD ARYA  
ADHS (Plan), Directorate of Medical  
Health & FW Services, Rajasthan.
24. Dr. O.P. YADAV  
Dy. CM & HO (Malaria),  
Directorate of Medical, Health & FW  
Services, Jaipur.

25. Dr. (Mrs.) K.V. SANTHA  
Deputy Director PHC  
Directorate of Medical Services & Family  
Welfare, Madras.
26. Dr. M. SRINIVASAN  
District Medical Officer, Erode  
Directorate of Medical Services &  
Family Welfare, Madras.
27. Mr. Y.K. AGARWAL  
DADG (MS), Government Medical Store  
Depot, Bombay.
28. Dr. G.K. BISWAS  
Assistant Director General (Stores)  
DGHS, Nirman Bhavan, New Delhi.
29. Mr. B.R. SROY  
DADG(MS), Government Medical Store  
Depot, Karnal (Haryana).
30. Mr. J.K. LAUL,  
Assistant Depot Manager,  
Nirman Bhavan, New Delhi.
31. Dr. A.K. AGARWAL  
Assistant Professor,  
Department of Medical Care &  
Hospital Administration, NIHFWS
32. Dr. A. BANERJEE  
Assistant Professor,  
Department of Reproductive Bio-Medicine.  
NIHFWS
33. Mr. M.V.N. MURTHY  
Assistant Research Officer  
Department of Management Sciences,  
NIHFWS

**Observers**



**Work Schedule**

***Monday, February 13, 1984***

0900-1100	Registration	
1000-1100	Inauguration	
	(a) Welcome of the Guests Delegates and Faculty	
	(b) Personal introduction of the Delegates and Faculty	
	(c) Outline of workshop Contents and Objectives	
	(d) Inaugural Address by the Chief Guest	
	(e) Vote of Thanks	
1100-1130	Coffee	
1130-1300	Logistics Management—An Overview	T.R. Anand
1300-1400	Lunch	
1400-1515	Drug and Contraceptive Logistics	Jack Graves
1515-1530	Tea	
1530-1630	The Drug Supply System in India	R.C. Sharma
1630-1730	The Contraceptive Supply System in India	Vikramajit

***Tuesday, February 14, 1984***

0930-1100	Basic Principles—Introduction to Logistics Systems Management : Types of Systems, Inventory Levels	Jack Graves
1100-1130	Coffee	
1130-1300	Basic Principles—Exercises	Jack Graves Anthony Hudgins
1300-1400	Lunch	
1400-1515	Basic Principles—Logistics Systems Management : Transportation, Recording and Reporting, Physical Inventories	R.C. Monga Jack Graves
1515-1530	Tea	
1530-1700	Basic Principles—Exercises	Jack Graves R.C. Monga

***Wednesday, February 15, 1984***

0930-1100	Logistics Record Systems in India	G.K. Biswas
1100-1130	Coffee	
1130-1300	Panel Discussion on Problems in the Operation of Logistics Systems	T.R. Anand Jack Graves R.C. Sharma Vikramajit
1300-1400	Lunch	
1400-1515	ABC/VED Analysis	T.R. Anand
1515-1530	Tea	
1530-1715	Exercise on ABC/VED Analysis	T.R. Anand



***Thursday, February 16, 1984***

0930-1100	Results of Previous Day and Combining ABC and VED—An Example from Gautemala	T.R. Anand Anthony Hudgins
1100-1130	Coffee	
1130-1300	Stores Management	Y.K. Agarwal Jack Graves
1300-1400	Lunch	
1400-1515	Supply Data Analysis	Jack Graves
1515-1530	Tea	
1530-1700	Evaluating Supply Systems	Brij Mohan

***Friday, February 17, 1984***

0930-1100	Evaluating Supply Systems (Continued)	Brij Mohan
1100-1130	Coffee	
1130-1300	Evaluating Drugs and Contracep- tive Supply Systems	Richard Ownes
1300-1400	Lunch	
1400-1515	Forecasting Principles	Kanti Swarup
1515-1530	Tea	
1530-1630	Forecasting Contraceptive Usage	Jack Graves Kanti Swarup
1630-1715	Forecasting Exercise	Anthony Hudgins

***Saturday, February 18, 1984***

0930-1100	Use of Consultants	M. G. (Dan) Singh, R. C. Sharma and one outside Consultant
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1100-1130 Coffee

1130-1200 Field Trip Arrangements

R. S. Gupta  
A.K. Agarwal

*Monday, February 20, 1984*

0900 Travel to Jaipur

1530 Visit to Family Planning  
Stores, Jaipur

*Tuesday, February 21, 1984*

0930-1300 Local sight-seeing in Jaipur

1300-1400 Lunch

1400 Travel to Delhi

*Wednesday, February 22, 1984*

0930-1000 Development of Checklist for  
Evaluations

Richard  
Owens

1000-1230 Visit to ESI Stores Depot, Family  
Welfare Depot, Nirman Bhavan,  
Union Carbide FW Depot and  
Medical Stores of S. J. Hospital

1300-1400 Lunch

1400-1730 Group Work on Field Visit

*Thursday, February 23, 1984*

0930-1100 Team Presentation—Result of  
Visits

Jack Graves  
Anthony  
Hudgins

1100-1130 Coffee



**1130-1300 Team Presentation (Continued)**

**1300-1400 Lunch**

**1400-1630 Afternoon assignment read Analysing Performance Problems** Richard Owens

***Friday, February 24, 1984***

**0930-1100 Discussion and Exercises on Analysing Performance Problems** Richard Owens  
R. S. Gupta

**1100-1130 Coffee**

**1130-1300 Present specific local problems for Discussion by Faculty** Somnath Roy  
Jack Graves

**1300-1400 Lunch**

**1400-1600 Meet in Groups to formulate specific local problems** Jack Graves,  
Brij Mohan,  
R. C. Sharma  
Vikramajit

***Saturday, February 25, 1984***

**0930 Concluding Session**

## **Evaluation Report by Participants**

### **Introduction**

We have the honour in presenting the evaluation report of the First Inter-country Course on Logistics and Supply Management for Health and Family Planning Programme organised at National Institute of Health and Family Welfare from 13 to 25 February, 1984. The participants were drawn from three countries—Nepal, India and Bangladesh. They were 30 in number; 1 from Bangladesh, 3 from Nepal and the rest from India representing 13 States and Union Territories. Besides, participants from the Directorate-General of Health Services and the Ministry of Health and Family Welfare and three members of the faculty of National Institute of Health and Family Welfare, were assigned the responsibility to act as observers of the course.

The objectives of the evaluation committee are :

- (a) To collect opinion and suggestion from participants for modification of the course, if needed.
- (b) To evaluate various sessions of the course to find out the achievement of the objectives formulated for the course.
- (c) To suggest improvements for future courses.

The standard proforma formulated by NIHFW was cyclo-styled and copies circulated to all participants. These copies were collected at the end of each session and the results analysed. The questionnaire administered for each session consisted of nine questions. The first five questions indicated the ranking of the participant's impression about the session with regard to its overall usefulness, preparation of participants to organise a similar logistics course in their respective places, the clarity of the subject-matter presented, the usefulness/adequacy of the



audio-visual and other resources, materials used in the session and the opportunity given to the participants for involvement. The other questions broadly indicated the time allotted to each session, the participant's choice of different sessions as best or otherwise, the areas where the participants would like to have more information and suggestions for improvement. All the 30 participants were provided with the blank evaluation forms for all the sessions. In all there were 30 sessions conducted for the course from 13.2.1984 to 23.2.1984. All the participants submitted the evaluation forms duly filled in and this helped the evaluation committee to analyse their contents. For field visits, separate evaluation sheets were given. Some of the sessions were grouped together, for the sake of convenience.

The findings are as follows :

#### **1. Usefulness of the sessions**

About 80 per cent of the participants considered all the sessions very useful.

#### **2. Participants preparation to organise similar workshops in their back home Projects**

About 65 per cent of the participants expressed the view that they were adequately prepared to organise similar logistics workshops in their respective places. The participants noted the clarity of exposition at various sessions and their understanding in this regard.

#### **3. Presentation of the subject-matter**

About 90 per cent of the participants emphasised that they were able to understand various sessions very easily.

#### **4. Utilization of audio-visual and resources materials**

About 82 per cent of the participants considered the audio-visual and resources materials provided for the sessions very useful and session No. 2 required special mention, *i.e.* drugs and contraceptive logistics wherein audio-visual materials had been used attracted the attention of the participants.

## **5. Participant's opportunity for involvement in the sessions**

About 75 per cent of the participants were of the opinion that there had been considerable encouragement for the involvement of the participants in the sessions and a special mention had to be made with regard to session No. 9. In the panel discussion on problems in the operation of logistics system, etc. 91 per cent of the participants actively took part in the interaction particularly in respect of family welfare supplies with special emphasis on 'Nirodh'.

## **6. Sessions best liked**

About 70 per cent of the participants considered the lecture method best suitable for the sessions, whereas 30 per cent said that the lecture-cum-discussion method and the lecture-cum-demonstration method with audio-visual aids were appropriate for the majority of the sessions.

## **7. Adequacy of time**

All the participants were of the view that the time allocated for each session was enough.

## **8. Participants seeking more information**

Ninety per cent of the participants held the view that the contents of various sessions were adequate and hence they did not seek for any additional information. This was true in respect of 90 per cent of the participants. The remaining 10 per cent referred to certain additional areas of information and suggested the following :

Additional case studies may be utilised. A country's specific case studies and examples may be given and problem oriented approach may also be taken up. Delegation and decentralisation of powers to various peripheral and medical stores depot for effective management of logistics system.



Clarity of the procedures involved in placing indents and dealing with time bound and expired medicines. Sessions for improving contraceptive distribution/supply system at the peripheral levels. Also suggested the utilisation of PERT/CPM methodology, in the logistics management system in relation to stores management. Qualitative analysis of supply system.

## **9. Suggestions for improvement**

About 85 per cent of the participants agreed that the work schedule was well-structured and there was only minimal scope for improvement of the sessions. The areas of improvement were indicated as :

Extensive utilisation of audio-visual aids by all faculty members, utilization of case studies based on the Indian conditions, a few aspects of general management concepts, critical appraisal of the procedures of the Medical Stores Depot, indenting and supply systems, and identification of logistics and supply management problems from the district to peripheral levels. The participants requested the supply of calculators for analysing exercises involving statistics.

## **10. Basic principles, exercises, etc.**

About 85 per cent of the participants expressed their view with regard to topics entitled basic principles, introduction to logistics system management, inventory management, recording and reporting physical inventories, panel discussion on problems in the operation of logistics system, evaluating supply system, evaluating drugs and contraceptive supply system, forecasting and forecasting exercises, use of consultants and preparation of checklist for evaluation. These topics were considered new in the logistics and supply management in the Indian context and the participants felt their inclusion a timely need.

## 11. Field visits

Seventy per cent of the participants said that the field visit to Jaipur was 'extremely useful' and 30 per cent said that it was 'useful'. However, it has to be mentioned that within the shortest possible time very satisfactory arrangements were made for the Jaipur field visit. Visit to ESI medical stores, family planning stores of the Union Ministry of Health and Family Welfare, Union Carbide and Safdarjang Hospital were considered very useful by the participants and they were able to observe important things in a critical manner. The discussion held to elicit participants' opinions in regard to field visits was very interesting. There was effective presentation followed by good interactions.

The group which attended the course is of the opinion that the objectives envisaged in the course report have been achieved to a great extent and observes that the Inter-country Course on Logistics and Supply Management for Health and Family Planning Programmes has been timely and appropriate one to improve management and strengthen health and family planning programmes in the context of the present-day requirements of developing countries like India, Nepal and Bangladesh. The members of the evaluation committee express their deep sense of gratitude to the NIHF Faculty, observers, statisticians, stenographic assistance, etc. who have helped in processing the data within the shortest possible time.

The participants are of the view that in general the arrangements, *i.e.* accommodation, transport, boarding and lodging facilities were considered excellent. Once again they express their hearty appreciation and thanks to the funding organisation and National Institute of Health and Family Welfare, New Delhi, the Centres for Disease Control, Atlanta, USAID and the Regional Training Service Agency, University of Hawaii for their resourcefulness in successfully conducting this Inter-country Course on Logistics and Supply Management for Health and Family Planning Programmes.





*Field Visit*













